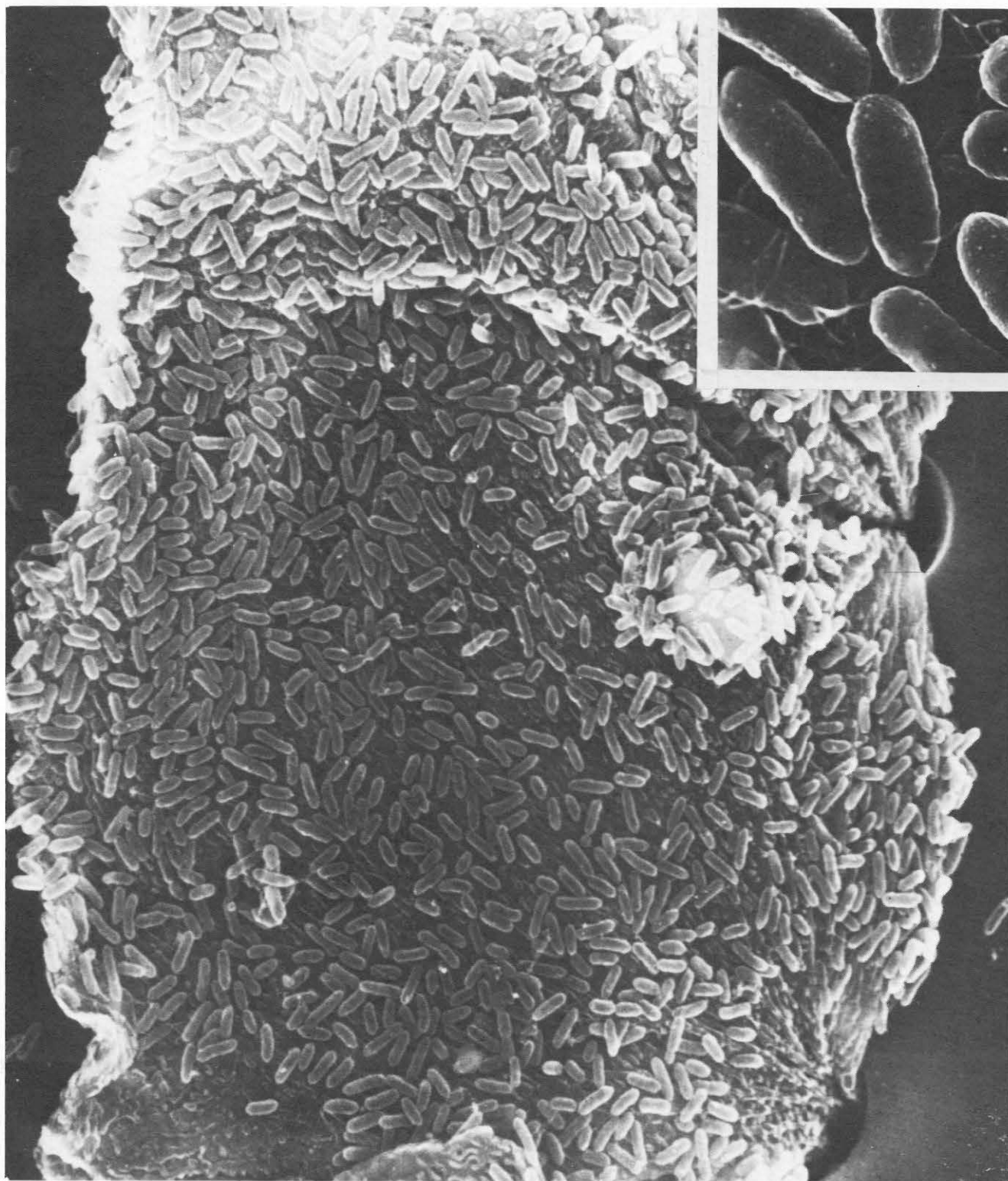


U.S. NAVY MEDICINE

January 1981



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DEPARTMENT ROUNDS

Bay of Pigs Veteran is a Navy Dentist

Escape or death were Mario Lamar's alternatives. The militiaman at the yacht club in Cuba where his family kept its boat questioned him thoroughly. As executive officer of a Cuban Navy underwater demolition team, LTJG Lamar was well known and it was quite late in the afternoon to be starting a fishing trip.

"It doesn't sound dangerous now but it was very traumatic," Lamar said. "The rest of my family had left Cuba earlier that day by airplane. They had taken many of our valuables with them to Miami. My father was a diplomat so he had no trouble leaving the country.

"I had to leave by boat the same day because someone would soon discover that our house was empty."

That was the reason for Lamar's "fishing trip" late that afternoon in October 1961.

"If I had been caught, I'd have been put up against the wall and shot," he said.

"I didn't dare buy more gas than was already in the boat because it might look suspicious. I had to take my time and pretend to fish for a while before I headed for Florida. I ran out of gas about three miles off Key West and had to stay at anchor until someone came by and sold me some gas.

"When I arrived in Key West early the next morning, I was told that Cuban radio stations had been

putting out an alert to be on the lookout for me. They called me a traitor.

"At that time, all I had to my name was the swimming suit I was wearing, a pocket knife, and a cigarette lighter."

Lamar speaks matter of factly about his escape from his native country. His patience and dignity suit his working environment, the Naval Regional Dental Center at the Naval Station in Norfolk, VA.

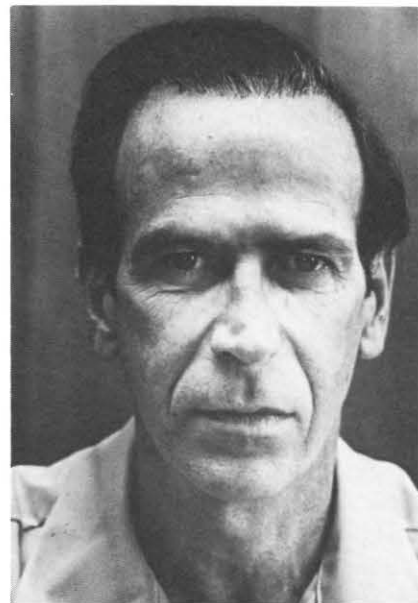
He is now at home in his light blue dentist's jacket. His friendly professional manner seems to be the result of years in his chosen profession. He has, however, been a Navy dentist for only a year.

Even today as he treats a patient, a memento of one of the many turns Lamar's life has taken is obvious. It is the ring he wears. It could be a class ring symbolizing his graduation from the University of Costa Rica or the University of Havana school of dentistry or the Cuban Naval Academy.

Instead it is a constant reminder of Lamar's participation in the 1961 Bay of Pigs operation. During the ill-fated invasion, troops tried unsuccessfully to wrest control of Cuba from Castro's forces.

"I guess not many people wear rings commemorating a defeat," Lamar said. "I was a member of 'Brigade 2506.'"

"When I first came to the United States I planned to go back to Cuba.



LCDR Lamar

I had contacts here and I got in touch with them as soon as I arrived in Florida. I was active in groups trying to liberate Cuba from Castro."

Lamar managed to escape Cuba for a second time after the Bay of Pigs operation. Some of his family weren't as fortunate.

"My brother was wounded in the arm and captured," Lamar said. "My cousin was also captured. They were both sent to prison. My brother was released in a year; my cousin after two years. Both men returned to the United States."

Two years passed and Lamar was still determined to free his homeland from Communist rule.

In March 1963, he accepted one of the commissions in the U.S. Navy offered members of his old brigade by President Kennedy. What seemed to be Lamar's initial step in accepting the United States as his

new home, was actually something quite different.

"For years after I first left Cuba, my sole purpose was not to establish myself here, but to return to Cuba to oust Castro," Lamar said. "That's why I joined the Navy as a line officer, not a dental officer."

"Those of us from the brigade who joined the Navy hoped—although we were never told this—that we'd be used someday in an effort to free Cuba."

Lamar attended Officer Candidate School at Newport, RI, where he graduated in the top 10 in his class and was commissioned an ensign.

Shortly after receiving his commission while serving in Norfolk as

an instructor at the Naval Amphibious school, Lamar met Susan Karol, a student at Old Dominion University, whom he married in 1964.

After volunteering three times, Lamar received orders to Vietnam in 1968.

"I still object to Communism wherever it may exist," he said. "I also felt an obligation to the United States because I'd been treated well here ever since I first arrived."

In Vietnam, Lamar served as officer-in-charge of lighterage for northern "I Corps."

"We used landing craft to transport supplies from Danang to Hue and Ba Na," Lamar said. "I was in charge of 150 craft, 23 officers, and 1,200 men. It was a good job for a lieutenant. 'I made quite a few of those trips myself. We seldom made a cruise without being shot at.'"

Lamar was awarded the Bronze Star and Navy Commendation Medals, the Vietnamese Cross of Gallantry, and the Combat Action Ribbon for his Vietnam tour.

Continuing his naval career as a line officer, Lamar served aboard USS *Capricornus*, an attack cargo ship; USS *Spiegel Grove*, a dock landing ship, and USS *Newport News*, a cruiser where he served as navigator and scheduling officer for Commander, Second Fleet. As a result of his shipboard experience, Lamar qualified as a surface warfare officer.

From *Newport News*, Lamar reported to the Panama Canal Zone, where he served as Navy liaison officer. While there, Lamar began his efforts to return to the field for which he was originally trained—dentistry.

"I'd done in the Navy what I wanted to do," Lamar said. "I'd driven a ship, been to Vietnam, and now it was time for me to go back to dentistry."

Lamar began a self-study program to update and refresh his knowledge of dentistry. He then passed the examination given by the National Board of Dental Examiners in the United States.

"I submitted a request to transfer to the Dental Corps," he said. "The Navy sent me to a one-year course at the National Naval Dental Center in Bethesda, MD."

"The Navy was really good to let me transfer to the Dental Corps. It has allowed me to practice dentistry in a high quality environment."

LCDR Lamar practices not only general dentistry, but also spends time in the various specialized clinics such as oral surgery, orthodontics, and periodontics.

"The Navy's a good opportunity for a dentist," Lamar said. "If I had a civilian practice there's no way I could have taken a year off to attend a course like the one at Bethesda. I'd have a hard time getting a week off to attend some of the shorter courses I've been to."

"I think Mario's transferring to the dental corps is wonderful," Mrs. Lamar said. "After all those years of being on a ship or in Vietnam, it's nice to know he'll be home most of the time for the next three years."

"Also, I know he won't be in the kind of dangerous situations he's been in in the past."

Dr. Lamar agrees with his wife. "After what I've been through," he quipped, "one of my life goals is being bored."

—Story and photos by Gary Miller □



LCDR Mario Lamar treats a patient at NRDC Norfolk.

On Growing Children

Problems of the Adopted

CDR Eli Breger, MC, USNR

"A child is a beam of sunlight from the Infinite and Eternal, with possibilities of virtue and vice—but as yet unstained." Lyman Abbott

How wonderfully humane and mutually gratifying it is for a couple to adopt and raise an infant and for a child in need to be united with succoring parents. As with past and present cultures, our society relies on this system for meeting the needs of parentless, homeless, neglected, or abused children by permanently placing them in the hands and hearts of couples whose desire for natural children has been frustrated.

The number of children adopted in our country continues to rise each year, but the availability of children relative to the demand is decreasing due to birth control, abortion, and the rising trend for unwed mothers to keep their children. In response, there is an increasing tendency for social agencies to make available for adoption older, handicapped, and nonwhite children. Less emphasis is being placed on matching a child and his adoptive parents for intelligence, nationality, appearance, and socioeconomic background. One-half of our adoptable children are

placed with relatives adding to their natural children. For the other half, social agencies arrange three-quarters of the adoptions and one-quarter is handled privately. Although adoption criteria vary in keeping with societal changes, the essential aim of placement remains constant: to provide a child with a home environment that will offer him conditions, experiences, and opportunities favorable to his physical and emotional growth and the maximal development of his capacities. It is hoped and expected that parents will grow emotionally and mature and attain the fulfillment and self-actualization that comes with child rearing.

Greater Risk of Developmental Difficulties

Do adoptions attain these goals? Adoptees can do as well as other children and their parents can find the raising of them pleasurable and gratifying. Problems do arise but often they are minor. However, it has long been observed that although adopted children represent a tiny percentage of the population, they are seen far out of proportion to their number by private practicing psychiatrists, at child guidance clinics, school services for learning difficulties, and other special juvenile facilities for emotional and social problems. In my own years of practice, adopted children have usually constituted at least 10 percent of my caseload. This heightened frequency does not appear

related to overprotection and a greater tendency for adoptive parents to seek help since pediatricians and other primary care physicians do not see adopted children any more often than their proportion in the population. For any child, there is the possibility for developing emotional difficulties and problems. However, one must say that for the adopted child the chance is somewhat higher. This observation is worthy of study and analysis.

Range of Difficulties

What is the nature of these emotional problems? At first view, the range of difficulties is not dissimilar from nonadopted children in a child psychiatric population. However, upon further study, a cluster of presentations emerges which appears understandable when one considers the unique psychodynamic aspects of the adopted condition.

Hyperactive patterns with attendant short attention span, distractability, low frustration tolerance, and impulsivity. This may be a manifestation of anxiety and insecurity. However, there is as yet an unproven speculation that this problem may result from a subtle dysfunction of the child's nervous system. This dysfunction might have been due to an excessive outpouring of various hormonal substances affecting the developing embryo's nervous system by the biologic mother who may have been under great emotional stress.

Dr. Breger is Chief of the Psychiatry Service at the Naval Hospital, Beaufort, SC 29902. Copyright 1981 Eli Breger, M.D. All rights reserved. May be reprinted or reproduced within the Navy for nonprofit educational purposes in keeping with the fair use doctrine.

Negativism, willfulness, and resistance to socialization demands and training leading to excessive and ineffective discipline. These problems reflect weaknesses in the basic mother-child love tie. A successful working through the developmental "phase of resistance" in an infant between 18 months and 3 years is vitally dependent on a close and meaningful parent-child relationship.

Learning problems. Successful learning is dependent on the child's innate neurologic integration, his ability to sit still and concentrate, his having sufficient security to risk failure while attempting to master new processes, and freedom to concentrate unhindered by deflecting thoughts of unhappiness and anxiety. Adopted children are somewhat more likely to have life problems negatively affecting the learning process.

Aggressive, antisocial, and conduct disorders reflecting the acting out of internal psychological conflicts. Although not uncommon in childhood, this pattern is also often seen during adolescence. The youngster has a very strong need to feel like his peers and in a dramatic way is working through his sense of identity. He is reassessing his past relationship with his parents as he tries to establish a more mature one. Certain features unique to the adolescent's adoptive role within his family may aggravate these conflicts.

Limitations in relatedness between child and parent. It is as if the deep and singular love tie between child and parents has never been solidly established. In extreme cases the child feels himself to be a stranger in his own home.

Uniqueness of the Adoptive State: Child

What is unique about being an adopted child? What contributions

might he make to the higher incidence of dysfunction?

A successful beginning for a child is strongly dependent on the child's ability to establish a deep and primary love tie to the mother. Once accomplished, the resulting basic trust and security enables development to proceed smoothly, training to take place successfully, and parents to see and be reassured by the gradual unfolding of progress and positive growth forces within their child. Adoptive parents and their children have a more difficult time establishing this tie. It may remain tenuous with feelings of developing and persisting distantiation.

The adoptee's problems often represent a response to negative parental attitudes. Parents may be angry and rejecting. They may be insecure with feelings of inadequacy about their ability to successfully raise a child, or they may be pessimistic about the child's eventual outcome. Once the youngster's development shows signs of these strains a vicious circle may develop. The child's behavior brings on a consolidation of the negative parental attitudes, thereby confirming the child's negative anticipations.

Socialization training and discipline are quite complex and difficult tasks for all families. Adoptive parents concerned about the unknown and potentially "bad seed" within their child may be more prone to authoritarian handling. This may lead to feelings of rejection on the child's part as well as fantasy that his biologic parents would treat him better were they available to him.

A desire to discover one's lost parents is a deep drive within individuals separated from their biologic roots. This has been exemplified for all times in the great Greek myth, *Oedipus*. It is only natural for adopted children to wonder and

fantasize about that unknown missing part of their history with all its implications for feelings of abandonment and rejection. This is especially heightened during times of punishment and guilt. During adolescence, the child reworks his sense of identity and there is a resurgence of such preoccupation. It is complicated by more advanced concern regarding the implications of one's unknown heredity on future marriage and offspring.

Uniqueness of Adoptive State: Parent

Why is being an adoptive parent difficult? What is the parental contribution to problems with their adopted children? The answers are far from clear and have not been well studied. In my experience and judgment, the following considerations appear central.

A married couple's inability to conceive is a deep disappointment and this perceived failure negatively affects confidence and self-image. It is a severe blow to their egos leading to depression and anger. They may feel forgotten by God and apart from the mainstream of their contemporaries. These couples have been deprived of "matriculation" into a fully adult sexual identification which necessitates pregnancy as the final stage. In their efforts to conceive, they undergo many medical procedures enhancing feelings of defectiveness and are often told only psychological mechanisms are at fault. Spontaneous and joyful sexual relations are often impaired under the ever present pressure and specter of not conceiving.

Adoptive couples lack a gradual preparation for their newfound role and task. Through all of the developmental years, a child is, in a variety of ways, preparing to grow up, get a job, marry, and have children. A moment's reflection will bear this out as we consider the

issues inherent in much of children's play. It is only the exceptional and rather fortunate adoptive couples who, as children, had adequate role models in another adoptive parent to show them the way. During the months of their pregnancy, women receive a great deal of support in preparation for their parental role. Adoptive couples more often are the recipients of well-meaning but inopportune and insensitive remarks by those around them which tend to enhance their sense of being different. "You're lucky. Pregnancy is so unpleasant." "She's a lucky girl to have been picked by parents like yourselves."

Pregnancy unleashes nurturant forces in couples. An emerging intimate fantasy between parents and child gradually develops during the nine months. This force enables biologic parents to encompass the newborn infant into their self systems as their very own and thereby establish and consolidate the primary love. Adoptive parents are often somewhat older and therefore less flexible and at times rigid. They are usually less comfortable with their little baby and insecure in allowing the undefined and gradually emerging growth forces within the child to take form. Instead, there is a tendency for active intervention leading to either excessive and premature training or overprotective and oversolicitous approaches. Both patterns enhance developmental dysfunction.

Unique to the adoptive situation is the child's little known heredity. Quite frequently adoptive parents fear there are "bad seeds" within the child which will emerge and prevent a smooth and successful development. They are believers in the Biblical passage, "the sins of the father will be visited upon his sons." Therefore, when quite normal and phase-appropriate develop-

mental problems arise, they are viewed as confirmations of their worst fears and there is a tendency to over react. Although over reaction tends to be the more common response, one frequently sees emotional distancing from their child on the part of parents. This is a defensive means to avoid the narcissistic injury when a child does not meet parental expectations. Adolescence, with its natural genital thrust, may be particularly threatening to these parents as they deal with their child's emerging sexuality.

Helpful Suggestions

What can prospective or actual adoptive parents do to mitigate against such problems and forces? Where a couple is contemplating adoption, it is wise to discuss with each other or with a third party the myriad of dynamic issues described above as well as those unique to their particular situation. Consideration, and ventilation may enable the process to take place on firmer footing. Such discussion will likely lead to a more honest and realistic understanding of whether adoption is truly desired for the sake of building a family or whether it might have unconsciously evolved as a means for resolving deep interpersonal problems such as the consolidation of a failing marriage.

It is advisable to express openly feelings regarding their problem in conception and who bears what responsibility. They should try to work it through as far as possible so that persistent guilt, anger, and depression are minimized, hopefully aiding a more productive and successful raising of the child.

Speaking to other adoptive parents and having them share their experiences should prove helpful.

While waiting for the child to become available, it would be beneficial for the prospective parents to

attempt to develop as strong a nurturant force as possible through the mechanisms of discussion, imagery, and fantasy. Volunteer work caring for very young children should enhance this process. It might create a relative parity with the forces at play in biologic parents during the period of pregnancy.

Adopt as young a child as possible. The development of a very strong love tie will then be enhanced. Although adoption of a somewhat older child brings with it some knowledge of his personality, intellectual ability, and neurologic integration, it also brings with it the problem of a child having adapted to earlier parental surrogates, losing them and having to readapt to new ones.

In the early raising of the adopted child, I would stress intense physical closeness and emotional involvement. Where the child might show a certain limitation in his relatedness, this should not be used as justification for leaving him alone. Do not be excessively overbearing but attempt to intensify contact and interaction.

Inform the child about his adoption in a proper manner and at an appropriate time. There are virtually no adequate reasons for concealing this information. In past years, this occurred more frequently when adoption was a less common phenomenon and where a child might be open to prejudice. Presently, concealment tends to occur in families where parents are quite conflicted and insecure about their decision. They usually rationalize that to tell the child would make him feel different and impair the development of closeness. Besides being dishonest it is rarely workable as the child will usually learn of it from others. It is generally advisable to inform a child about his adoption when he is old enough to comprehend the nature of the issue in some rudimentary manner. In nor-

mally developing children, this occurs in the fourth year. However, one should be flexible. It might be best to delay sharing this information with a child who is undergoing significant emotional or physical stress. Invariably, the initial imparting is heard and then consciously forgotten. It does leave a memory trace so that when the information is repeated at a later date it has greater reception. The discussion can be overdone and become a source of anxiety in the child. Therefore, it should be brought up only occasionally and, more importantly, when it is appropriate such as when a child asks questions about his background or about actual processes.

Parents should be truthful about the child's biologic parents, sharing whatever information they have in general supportive terms. They should stress that his biologic parents were victims of misfortune, they could not effectively care for him, and in their deep interest for him placed him for adoption. The adoptive parents in turn were unable to have a child of their own, looked far and wide, and had the good fortune to find him and select

him. In doing so, they have assumed all the responsibilities of natural parents and they now totally belong to one another.

Communication may be enhanced by reading selected books to the child at appropriate times. *The Chosen Baby* by V.P. Wasson, J.B. Lippincott Co., Phila., 1950, is recommended for three- to four-year-olds. For the child who can read, *Here's a Penny* by C. Haywood, Harcourt, Brace and Co., 1944, is a charming book explaining adoption.

Adoptive parents should be prepared when their angry child might say, "I hate you. I don't have to listen to you. You are not my real mother anyway." This should be confidently responded to with, "We are your real parents and yes, you do have to listen to us." Those parents who are secure enough to allow their child to look for his biologic parents during some crisis, or perhaps late in adolescence, are in a strategic position to enhance their position of strength and honesty in the eyes of their adopted children.

One should be on guard against overestimating genetic forces with-

in the developing child. Some adoptive parents are prone to stress heredity where there is preoccupation with the "bad seed" complex. They would not tend to think this way about other children in other families. Be mindful that in addition to specific genetic diseases there are only general characteristics which are inherited rather than specific and highly refined character traits. It is best to lean in the direction of "nurture" rather than "nature." Be optimistic. Emerging developmental problems in a child are just that and they can be managed with appropriate parental responses.

Each and every child is special unto himself. We can truly appreciate how singular is his situation as we see him interact with his parents, each having his own past and personality, with his siblings and with the larger social community. The adoptive condition adds a further measure of uniqueness to family living.

"We are to be grouped together, and brooded by love, and reared day by day in that first of churches, the family." H.W. Beecher □



Soviet Naval Medicine

CAPT R.P. Caudill, Jr., MC, USN

Emergency Medical and Surgical Care

Part five in a continuing series

Soviet military medical literature has had numerous articles concerning emergency medical and surgical care. Russian authors recognized early preparation of military and naval physicians for emergency medical efforts as essential and articles in the literature revealed that concern. Systematic review of emergency cases aboard Soviet naval vessels was accomplished by Soviet authorities. One article indicated that 90 percent of all diseases that required emergency assistance, in the Soviet author's experience, involved trauma and acute surgical affections of the organs of the abdominal cavity. (1)

Four general types of problems were seen by Soviet physicians at sea:

- acute traumatic injuries
- acute surgical problems
- acute cardiovascular illnesses
- acute poisonings

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Again, 90 percent of those diseases requiring emergency medical assistance involved trauma and acute abdominal problems. (2)

Soviet medical supervisors monitored the work of young physicians aboard ship. They noted, in some cases, errors in professional judgment. Young physicians in the first years of independent practice experienced their greatest difficulties while rendering emergency care. This conclusion was based on the "comparatively high frequency of errors committed by them." (3)

Colonel of Medical Sciences M.S. Kharsun, Candidate of Medical Sciences, wrote several articles concerning emergency medical and surgical care. He expressed concern about erroneous diagnosis in small medical units. Review of cases over a five-year period revealed that diagnosis of angina pectoris was in error in 19.3 percent of cases, and of myocardial infarction in 23.6 percent of cases. Evaluation of initial diagnoses was accomplished when the patient was seen in a higher echelon medical facility. Wrong diagnoses were often followed by improper treatment. That treatment was said to be "often irrational and

sometimes even contraindicated." Most of the mistakes were said to have been made by "young, inexperienced physicians." Inadequacies of history and physical examination were contributory, and skills at interpretation of electrocardiograms were said to be wanting in some cases. (4)

Colonel Kharsun, in another article, stressed the importance of monitoring emergency care for errors in accuracy of diagnosis, proper treatment, promptness, correctness of sequence, and continuity of treatment. He stated that there was, at that time, need for more attention to traumatology. (5)

Other authors discussed a review of five years experience in training surgical teams for surface ships, rendering emergency surgical aid on base, at anchorage, and at sea. Ships, physicians were trained in this study either by primary specialization courses in surgery or by annual short courses in hospitals ashore. Aidmen and sanitary instructors were also trained by hospital and base sickbays and by cruisers with operating rooms.

A physician serving as a ship's medical officer trained ashore.

When mentors were confident in his abilities, the physician shifted to the ship with his team. Surgery was actually carried out on the ship while in home port, allowing the ship's physician to gain confidence and familiarity with the surroundings in which he might have to perform surgery at sea.

In this review, over a five-year period, 22 appendectomies and three herniorrhaphies had been completed at sea. All had been done under local anesthesia of 5.5 percent novocaine and antibiotics. The patients were up on the third day and all healing was by first intention.

As a result of this effort in training for emergency surgical care during years 1963 through 1967, no

Surgery was actually carried out on the ship while in home port, allowing the ship's physician to gain confidence and familiarity with the surroundings in which he might have to perform surgery at sea.

ship returned prematurely through "fault" of the medical service. (6)

The concern of Soviet authors about the "isolated deployment" was seen again and again. In cases of "poisoning," the isolated situation of a Soviet naval vessel placed urgency on the acquisition of appro-

priate diagnostic and therapeutic skills. Lack of laboratory support aboard smaller vessels emphasized the need for individual skills. Poisoning was viewed as a serious threat and crew training in self and "mutual" aid was emphasized through individual handouts, manuals, and instruction of crewmembers. There was an emphasis on the importance of history taking in poisoning cases and principles of patient management were listed in order to:

- prevent further toxic substances from entering the patient's body
- accelerate toxin excretion
- administer antidote
- treat symptomatically and supportively (7)



Surgical procedure under way aboard a Soviet vessel.

Art by HM3 Gay L. Sepponen

In three articles, Medical Colonel M.S. Kharsun wrote about the importance of planning, training, education, and monitoring and quality. Colonel Kharsun acknowledged the expansion of the Soviet Navy, and discussed the mission of the naval medical service to support its technological advancement and the increasing number of prolonged cruises.

Hardware Management. He discussed the matter of management of medical equipment, supplies, and packs aboard ship and noted the need for advanced resuscitation gear aboard ship. These included respirators, airway devices, oxygen inhalators, and suction devices. He advocated radio links for shore assistance arranged in advance. (8, 9, 10)

Quality Control: The Lessons of Misadventure. Colonel Kharsun strongly advocated the importance of the knowledge of errors and mistakes, inadequacies of facilities and equipments, and training deficiencies. The ability to plan and train rationally hinged, in part, on the ability to learn from the experiences of misadventure and error.

Refresher Training. "It is desirable for every ship or unit medical officer to be compelled to take a monthly course in traumatology, emergency surgery, and emergency therapy as he emerges in medical practice." Soviet experience was said to show that even short courses in trauma and emergency care were beneficial. Kharsun advised contact with civilian first aid, shock, and cardiac units to broaden the experience of military medical officers. (11)

Equipment Organization and Response Times. Colonel Kharsun wrote of the importance of time in shipboard first aid. He stated that the physician at sea must have rapid access to first aid gear and medications, instructions in their use, and

diagnostic and therapeutic guides for rapid review.

In Kharsun's opinion, the organization of emergency medicine was of great importance. When an emergency occurred, it was often too late if advanced planning had not already been accomplished. (12)

Measures for Improvement of Practices. Kharsun advocated the following measures to improve first aid in the practice of naval medical officers:

- insure efficiency and timeliness in the work of medical services of ships and units
- strive for constant improvement in personnel qualifications for duty aboard ship
- improve diagnosis of acute diseases and injuries
- use modern methods and resources to render first aid in shock, acute diseases, and terminal states (13)

Expansion of Basic Emergency Care Training. The blossoming of medical information made it difficult for Soviet naval physicians to remain current. Therefore, there was a need for special courses in acute care. Those courses would be coupled with detailed study of the surroundings in which the young physician would be working. The methods recommended included teaching emergency surgery and therapy. Additionally, it was stated that the young physician should receive lectures in emergency care in subspecialty areas, including neuropathology, otolaryngology, ophthalmology, and others. The lecture and study course was to be followed by practical experience, equipment familiarization, and training in resuscitation techniques and devices. (14)

There was heavy emphasis on emergency medical assistance as an area of study for army and navy

physicians. Duty in remote areas, far from hospitals create situations in which a physician might be unlikely to receive assistance. Timely evacuation of patients or casualties was seen as an impossibility in many instances. Thus, physicians highly qualified in emergency care were essential to the well-being of the Soviet seaman. (15)

Summary of a Soviet Author's Thoughts. Kharsun's articles evidenced his great concern for planning, quality of care, education and training, and equipment and supply management. He recognized the importance of patient education and crew training and expressed strong

The ability to plan and train rationally hinged, in part, on the ability to learn from the experiences of misadventure and error.

concern that the medical and health monitoring of the crew would contribute to emergency medical readiness through preventive medicine practice. (16)

An article of more than passing interest entitled "Some Aspects of Emergency Care on Ships," dealt with classification of emergency conditions aboard ship and preparations for those emergencies. The author, Major A.A. Krylov, suggested classification of emergency conditions as follows:

- internal medical disorders
- acute poisonings and intoxications
- conditions resulting from exposure to physical and environmental agents such as heat, cold, motion, barotrauma, radiation, and others.



Soviet sailors participating in a chemical, biological, and radiological exercise.

He then recommended a priority plan for evacuation by category as follows:

First priority: Diseases and conditions in which urgent evacuation of patients from a ship was essential for immediate and vitally needed therapeutic actions. Conditions included renal insufficiency, decompression sickness, and pulmonary barotrauma.

Second priority: Diseases and conditions in which evacuation of the patient from the ship was possible after initial treatment and stabilization, including diabetic coma, hemorrhagic diathesis, leukemia, and agranulocytosis.

Third priority: Diseases and conditions in which patients might be

evacuated under the care of specialists after receiving emergency care aboard ship, including myocardial infarction, heart failure, refractory pneumonia, radiation sickness, and intractable asthma.

Fourth priority: Diseases and conditions that could generally be treated during a cruise using the skills available.

The author felt the ship's surgeon should be expert in lab and electrocardiographic skills. He listed laboratory procedures which should be available on the ship.

- WBC
- CBC
- RBC
- hemoglobin
- platelet count

- coagulation time
- toxic granulation detection
- "complete" urine analysis
- stools for blood
- hematuria
- carboxyhemoglobin

In his discussion of drugs needed aboard ship, Krylov stated that hydrocortisone and prednisolone were needed and could be used for "severe rheumatic endocarditis," and that "novocainamide" was a suitable antiarrhythmic agent for use on ships.

Major Krylov felt that ships, physicians required additional professional literature on emergency therapy, particularly a special handbook to aid ships' surgeons in diagnosis and treatment of emergency

conditions with specific reference to shipboard hazards, rapid lab methods, and a brief on electrocardiography.

He also stated that emergency therapy should be a regularly discussed topic at scientific and practical conferences of physicians in fleet medical assemblies and in the course of carrying out other forms of specialized training. (17)

Numerous other articles addressed the importance of emergency care aboard ship. Detailed studies were accomplished by some authors. The fact that articles suggest that "acute poisoning" is one of the four important general types of problems seen at sea by Soviet physicians as recently as 1971, raises interesting questions about the nature of the Soviet shipboard environment. Although rare episodes of poisoning occur aboard ships of our own Navy, most instances are accidental and related to inappropriate exposure to some normally nonthreatening agent. Certainly, in planning for either mass casualties or evacuation, poisonings would, in our Navy, be handled as the threatening events they normally are. It is important, however, to realize the threat posed by decomposing structural materials by fire and explosive agents. The effects often expected in such events are primarily pulmonary but may be more complex. Discussions in some articles suggested that poisonings other than

those related to pulmonary routes were anticipated. However, the nature of the toxic agents was not described.

The Soviet concern for the quality of emergency care rendered by

The fact that articles suggest that "acute poisoning" is one of the four important general types of problems seen at sea by Soviet physicians as recently as 1971, raises interesting questions about the nature of the Soviet shipboard environment.

physicians was described in several articles. In the article concerning emergency medical care, it was noted that the mistakes were often made by "young inexperienced physicians." This comment bears particular relevance in our considerations. Today, some medical students complete their years of school without significant clinical experience, or with clinical experience limited to a narrow channel of skill. If this is followed by an internship in which clinical experiences are again limited, individuals completing their GME-1 year may be intellectually prepared but handicapped by lack of supervised experi-

ence in direct care. To take such an individual, provide minimal orientation, and then assign the physician to "independent duty" would predispose to complications. The importance of screening for duty in remote or isolated stations and the imperative need for proper practical experience in preparation for such duty is of great importance. Patients treated by physicians from such backgrounds receive less than optimal care. The physicians themselves are placed in a situation in which frustration, uncertainty, and great stress would be common. It would be reasonable to expect an individual so assigned to complete the duty with a feeling of never wanting to repeat the experience.

Concern of the Soviet medical leadership for methods of management of medical equipment and supplies aboard ship evidenced their awareness of shipboard problems. Just as our own leadership is establishing central management methods for equipment, the Soviet leadership has advocated similar methods.

The matter of training in emergency medicine for military physicians was given special emphasis, and training in emergency procedures was considered imperative. The implications of this need aboard our own ships is obvious. Currently, many commanders are adding cardiopulmonary resuscitation training to the general first aid training provided to crewmembers.

Combat Readiness and Mass Casualty Planning

The Soviet naval medical literature heavily emphasized the importance of planning and decision making by naval medical officers prior to entering combat, particularly the interrelationship of the medical unit with the line combat unit, tactical doc-

trine, and the actual combat environment.

Soviet military medical personnel received training both in military medical educational institutions and combat readiness analysis and decision making processes. Physicians

were instructed in the method of analysis of combat readiness. In order to prepare for combat, the physicians were taught to make a rational prediction of the casualties of the unit, including the following variables:

- types of wounds
- range of occurrence through the command
- personnel and supply needs of the medical support unit and availability of those resources
- actions required for readiness of the command's medical service
- distribution of personnel and material during battle
- possible movement of personnel and material during the course of action
- sanitary, hygienic, and epidemic control measures and priority of execution
- measures for medical protection of combat and support personnel and methods of accomplishing these measures (18)

Soviet naval physicians learned triage. Called "medical sorting" in articles in the literature, it was taught at the military field and naval surgery facility at the Gorkiy Medical Institute. The teaching procedure there was so successful it was subsequently copied by the military medical schools, medical institutions, and military medical units. The method of study was developed to consolidate theoretical knowledge and to give practice in the medical sorting of wounded and other casualties.

The course was called a "special thematic class of naval surgery." It opened at the facility for the improvement of the specialized training of doctors for the navy. Equipment used in the course included:

- visual study aids
- showcase of materials
- scale models and photos of warships and submarines
- two large "stands" or models

The "stands" were training devices which described medical sorting of wounded and casualties on first and second class warships. The

stands illustrated:

- functional quarters in medical aid stations
- routes of movement within the station
- evacuation routes within the ship

The course of study required four classroom hours followed by a graded exercise. Following the examination on the theoretical or didactic material was a period of class study of medical sorting aboard ship. Teachers reviewed and controlled the quality of the study material and judged the final achievements of the students as the course ended. (19)

There was concern for the types of casualties that naval medical officers might encounter in combat at sea. It was noted that rocket and nuclear mass destruction weapons would cause an increase in the number of casualties designated "therapeutic-type casualties." The authors felt that naval personnel aboard ship would have higher percentages of pure forms of radiation sickness than shore units in case of nuclear attack. The combination of radiation sickness and burn injury was also predicted.

Aboard ship, certain considerations were uniquely important:

- Treatment at the site of combat and injury might be required because evacuation might be impossible.
- Evacuation of the injured might be difficult, requiring complex methods.
- Tactical training for naval physicians must be meticulous and thorough to enable them to develop medical plans for tactics proposed by line counterparts. (20)

One article dealt with a breakdown of combat casualties aboard ships of various sizes and types.

The authors felt that naval personnel aboard ship would have higher percentages of pure forms of radiation sickness than shore units in case of nuclear attack.

The article related types of injuries to the degree of damage to the ships. The information was intended for use in mass casualty planning in subsequent hostilities, including those in which nuclear weapons might be used.

The article pointed out that aboard ships sustaining light damage, poisonings should be the second most common injury (3.8 percent) following wounds, the greatest number (91.8 percent). Gasses, smoke, and other toxic products of fires and fire fighting would take their toll on ships' crews.

In sinkings, exposure should be a high number two in cause of casualties (32 percent in Soviet experience) behind wounds (55.6 percent). This pattern of difference, from ships with light damage, might be predicted on the basis of a number of reasons, including such factors as the lethal effect of immersion on more seriously wounded personnel. (21)

One article described an innovative approach to disasters at sea. At one fleet hospital, a "mobile resuscitation brigade" was formed to go to the site of severe injury or disaster. Team members included the following:

- surgeon
- anesthesiologist-reanimatologist
- neurosurgeon
- therapist
- transfusionologist

The most experienced physician on the team had the role of team leader. A special "RAF-type medical vehicle" was used, equipped for trauma, surgery, and resuscitation. The approach of the team was to resuscitate, stabilize, and evacuate. The authors stated that major thoracoabdominal surgery had been done for a major lung-liver wound casualty in deep shock. The work was done on the scene with good results. Early evacuation was accomplished after stabilization. (22)

The general Soviet naval medical literature most strongly emphasized the importance of planning for combat in the work of naval medical support. Whether through anticipation of types and numbers of casualties, through development of methods for casualty prediction, or through practical courses in triage and mass casualty handling, Soviet physicians were said to be given a solid grounding in readiness for combat.

The subject of combat readiness and medical support for that mission is one which is emphasized by our own leaders. Detailed study of contingency plans and interaction of medical resources in those plans is an integral part of high level head-

quarters planning. However, at the force level and in individual fleet units, combat planning and readiness training is carried out at unit or force level. If individual initiative and leadership falter or are ineffective, mechanisms to insure that effective planning occurs are less than optimal.

The "mobile resuscitation brigade" described is probably similar to the surgical teams our regional centers can put forward on short notice. Another special team concept in our Navy is that of the "Special Psychiatric Rapid Intervention Team" (SPRINT) concept developed for use in instances of disasters ashore or afloat which provides early rapid intervention for preventive psychiatric therapy.

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Medical Corps Promotions and the Law

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Over the course of one's service in the Medical or Dental Corps, one becomes familiar with a variety of publications about Navy life, e.g., *U.S. Navy Medicine*, *Navy Times*, and *The Reserve Forces Almanac*. However, little of a comprehensive nature has been noted on the subject of promotion procedures, especially as they affect physicians, both the regular (2100) and Reserve (2105) components. Recently, I had the opportunity to use the facilities of the Naval Reserve Center, Great Lakes and the Chicago Public Library to research this area in depth. The following review was prompted in part by my unique experience of having been recommended for promotion by two separate Commander Staff Boards: the FY78 active duty which convened in September 1977 and the FY79 inactive duty which convened in February 1979.

Discussion

The matter of promotion in the U.S. military is set out in Title X of the United States Code (USC). The Code contains 50 titles spanning the entire gamut of congressionally enacted law (compare Title VIII which deals with immigration and naturalization matters).^{*} Promotion Law for 2100 and 2105 officers on active duty is set out in Chapters

543 and 545; Chapter 549 pertains to 2105 officers on inactive duty. These chapters represent "codification" of two laws known respectively as the "Officer Personnel Act of 1947" and the "Reserve Officer Personnel Act of 1954." For reference, Table I sets out the sections contained within each chapter. As used in this article the word section refers to one in Title X.

Analysts such as those at the Naval Reserve Association in Washington, DC, are quick to point out that promotion is not a reward for long and faithful service. (1) It is contingent rather on (1) superior efforts in relation to one's contemporaries and (2) having completed the requisite time in grade or in service. From Table II,^{*} one can see that for an 0-4 (LCDR) to be considered for promotion to 0-5 (CDR) by an active duty board in FY81, he must have been in his present grade five years or have 14 and half years of promotion grade credit. (2) Quoting the directive that implements Title X, "... promotion grade credit shall be determined by adding entry grade credit and the years of continuous active duty as a medical officer. . . ." (3) Entry grade credit in turn is a determination of years which encompasses time frames such as medical school residency, and prior active duty. It is awarded at the time of original appointment or reappointment in the Medical Corps. For example, a physician being appointed directly after four years of medical school and three years of residency would

have an entry-grade credit of seven years and be appointed to grade 0-3 (LT). (4)

When either of the promotion phase points shown in Table II (i.e., promotion grade credit or minimum years of active duty service) has been reached by a 2100 or 2105 officer *on active duty* he becomes eligible for consideration for promotion. Moreover, in the case of officers being considered for 0-5 or 0-6, they become eligible two years earlier, i.e., they are eligible as "below-zone" candidates. They are "... within two years of entering the promotion zone for the grade under consideration, that is, within two years of reaching one or both of the required promotion phase points." (5) The exception to this: "... an officer appointed in grade 0-4 or 0-5, who has not completed a minimum of 12 months continuous active duty service as a physician or dentist in the grade to which appointed, shall not be eligible for consideration by a selection board for promotion to grade 0-5 or 0-6, respectively." (6) There are no below-zone promotions to 0-5 or 0-6 for 2105 officers on inactive duty.

Only a limited number of candidates (the numbers being determined by the Secretary of the Navy antecedent to the convening of the board) may be recommended for promotion each fiscal year. At this point, I should mention two terms commonly encountered—the "Lineal List" and "one's running mate." The Lineal List is simple a roster of all officers on *active duty* by seniority. For example, in 1976, two lieutenant commanders (one Line/one Staff Corps) with the same date of rank carried the numbers 019626-90 and 019627-31, respectively. The former was senior to the latter on the Lineal List. Also, the former was the running mate of the latter. He was the "... Lineal List Line officer not restricted in the

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^{*}Common law i.e. Federal Court decisions germane to officer promotions can be found in the *Military Law Reporter* (Public Law Education Institute) maintained in military and law school libraries.

^{*}Only applicable to active duty officers

TABLE 1

Chapter 543	Sections 5701-5711
Chapter 545	Sections 5751-5793
Chapter 549	Sections 5891-5912

performance of his duty whose lineal number and subnumber are sequentially immediately ahead of the staff corps officer." (7)

The success or failure of one's running mate is per se irrelevant to the Staff Corps officer. What is important is *when* his running mate becomes eligible. For 2105 officers on inactive duty, the definition of one's running mate is "... the next junior unrestricted Line officer on the Lineal List." (8)

Promotion procedure, however, is more easily understood as a five-tiered process involving:

- (1) Submission of the candidate's name to the selection board by the appropriate code division of Naval Military Personnel Command (NMPC)
- (2) Recommendation of the selection board
- (3) Selection by the President

- (4) Confirmation by the Senate
- (5) Actual promotion

To illustrate step 1 consider the case of an 0-4 in the Medical Corps who anticipates promotion to 0-5. The Active Duty Board convenes in the autumn and several months later the Inactive Duty Board convenes. The active duty candidate will have his name submitted to the board if either (a) his running mate is eligible or (b) he will have reached one of the two promotion phase points specified in Table II by the conclusion of the fiscal year in which the board convenes. Recall that active duty Medical Corps officers are eligible for below-zone consideration for promotion to 0-5 and 0-6. Inactive duty Medical Corps officers in "active status" are eligible only when their running mates become in-zone eligible. Active status reservists have the designation USNR-R or USNR-S1. Inactive duty Medical Officers who have the designation USNR-S2 are not in active status and are ineligible for consideration for promotion. The submission of an officer's record is an important responsibility because in the case of Reserve officers, omission by administrative error may result in retroactive promotion. Section 5904 states:

An officer of the Naval Reserve . . . who has met the requirements for eligibility . . . but whose name is omitted by administrative error from the list of officers furnished a selection board . . . (and) . . . if he is selected for promotion by the next selection board . . . he is entitled to the same date of rank and to the pay and allowances of the higher grade for duty performed from the same date as if he had been selected by the board from which his name was erroneously withheld.

Parenthetically, Section 5891 (c) provides that where an Active Duty Board was not furnished a candidate's record, the corresponding Inactive Duty Board may consider same even though the (Reserve) officer is on the Lineal List. Step 2 involves the evaluation of the service records and the judgment of the board on the merits of the candidates before it. To illustrate: the FY79 Inactive Duty Selection Board considered the records of 47 commanders (2105) coming into the zone for the first time. Eighteen were recommended for promotion to captain. Of 118 commanders previously in the zone, only 29 were recommended for promotion. Thus 28 percent (47/165) of the eligible officers were recommended. (9) After a determination of the candidates to be recommended, the report is forwarded to the President for his approval.

Apropos step 3 Section 5773 states:

Officers in any staff corps recommended for promotion to a grade below Rear Admiral . . . are considered as selected for the promotion upon the approval of the report by the President.

Section 5777 stipulates that the President may remove the name of any officer from the promotion list.

Step 4 is the submission of the executive nominations (promotion lists) to the Senate for its advice and

TABLE 2

To Grade	FY79	FY80	FY81
0-3	4/1	4/1	4/1
0-4	9½/4½	9½/4½	9½/4½
0-5	14½/5	14½/5	14½/5
0-6	21/7	21/7	21/7
Minimum Years of Promotion Grade Credit	Minimum Years of Active Duty Service in Next Lower Grade		

consent. The nominations are published in the *Congressional Record* on the date received and referred to the Armed Services Committee. Usually within one to two months, they are approved by the Senate and the *Congressional Record* will so indicate. If the nominations are submitted late in the session, e.g., in December, and are not acted upon before recess of Congress, Rule 38 of the Senate stipulates that they must be resubmitted at the next session.⁽¹⁰⁾ The Senate may reject a nominee although in practice this is uncommon.

Step 5 is the actual promotion. Staff corps officers are promoted when those who are to be their running mates are promoted. Promotion lists are published for active duty and inactive duty officers periodically throughout the year until all officers are promoted. Although active and inactive duty lists are separate and are routed to different centers, both are designated BUPERSNOTE 1421. When the command holding the candidate's service record receives the promotion list (or more recently the message which precedes it), the command will transmit the temporary appointment to the candidate for his acceptance. Reservists on active duty who are released prior to receipt of appointment do not forfeit same if they are serving under a valid Ready Reserve agreement and hence are in active status. BUPERSINST 1421.3C clearly states:⁽¹¹⁾

Appointment authority for Reserve officers selected for promotion while on active duty but who are released to inactive duty prior to appointment will be promulgated by a separate enclosure to BUPERSNOTE 1421.

This is a ministerial, nondiscretionary act demanded of the responsible code division within NMPC. No doubt, it has its genesis in Section 5891 which states:

A Reserve officer who has been recommended for promotion in the approved report of a selection board convened under Chapter 543 of this title and who is removed from the lineal list before he is promoted may be promoted under this chapter (549) notwithstanding the fact that he was on a lineal list when selected for promotion.

Annotations to this section indicate strong congressional intent to protect officers recommended yet not actually promoted:⁽¹²⁾

Officers of the Naval . . . Reserve selected for promotion under any provision of law would not be penalized by virtue of change of status with respect to active duty prior to their promotion.

The caveat here of course is that the officer must be on active status when actually promoted. Consider BUPERSINST 5400.42E which states that when an officer:⁽¹³⁾

. . . has been selected for promotion, but at the time of his transfer to the Standby Reserve Inactive (USNR-S2) he has not been appointed to the higher grade for which selected, that selection is terminated.

The provenience of this will be found in Section 5906.

To prevent administrative burden and inequity (by displacement of another candidate), both law and regulation stipulate that Inactive Duty Selection Boards may not consider for recommendation for promotion an officer who is on a prior promotion list. Section 5899 states:

An officer who becomes eligible for consideration for promotion under this section remains so eligible while he is in an active status However, a selection board convened under this chapter (549) may not consider for promotion to the next higher grade an officer whose name is on the promotion list for that grade as a result of his selection by an earlier board con-

vened under this chapter (549) or by a board convened under Chapter 543 of this title.

SECNAVINST 1421.5A stipulates: ". . . no officer may be promoted until all officers who were selected in the approved report of an earlier board are so promoted."⁽¹⁴⁾

Summary

This is an outline of the process a candidate for promotion must traverse. It is an amalgam of law and regulation similar for 2100 and 2105 officers on active duty and for 2105 officers in active status with the exception of no below-zone considerations. The basic process under current law involves (1) eligibility, (2) recommendation, (3) selection, (4) confirmation, and (5) promotion. For those on active duty, knowing one's running mate or promotion grade credit should suffice to enable one to determine if a given board will consider his or her record. For those on inactive duty (active status), knowing one's running mate and when he comes into the zone should be sufficient for a similar determination.

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Enteric Disease Program Assesses Health Risks to Naval Personnel

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Throughout history, the success and failure of military operations often have been affected as much by microbes as by men. In spite of numerous scientific and technological advances, infectious diseases are still one of the major challenges for military medicine. Recently, a team has been organized in the Naval Medical Research Institute's (NMRI) Medical Microbiology Branch of the Infectious Diseases Program Center to better assess the risk to naval operations posed by microorganisms that initiate their activities in the intestine (enteric pathogens), and to develop means to reduce exposure of our personnel to these microbial hazards.

Microorganisms are an integral part of the world in which we live. These organisms, which include bacteria, viruses, and protozoans, are held in check by various mechanisms in the human body. However, they sometimes are able to colonize

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*Electron microscopic view of a rabbit intestinal epithelial cell, showing the intestinal pathogen *Vibrio parahaemolyticus* (Vp) near the microvilli.*

body surfaces not usually inhabited by the particular microorganisms and illness of the host results.

The intestinal tract of man contains one of the largest and most varied populations of microorganisms found in the human body. When the interrelationships among microorganisms residing in the gut are disturbed, or when foreign microorganisms such as may be associated with contaminated food or water enter the intestine, enteric diseases may occur. Numerous symptoms may be associated with these diseases, but diarrhea and abdominal cramps are probably the most familiar.

Enteric diseases are not uncommon in the United States and occur in about 50 percent of people

visiting countries with less rigorous sanitation practices than the United States. Needless to say, this problem is particularly serious to military operations in which large numbers of people are rapidly translocated to foreign countries. Furthermore, contamination of common food or water supplies, such as on ships or in the field, can cause explosive and possibly mission abortive outbreaks of enteric disease.

Recently, efforts have begun to determine the scope of the enteric disease problem in Navy and Marine Corps personnel. Worldwide, enteric diseases are responsible for 200-300 hospital admissions per 100,000 persons per year, and 170,000-190,000 outpatient cases

per year in active duty Navy and Marine Corps personnel. Recent epidemiological studies by NMRI investigators have indicated that reported admissions and outpatient cases may only account for 20 percent of the total number of enteric episodes that occur in Navy and Marine Corps personnel. Other findings have shown that females are about five times as likely to be hospitalized for enteric illness as males; Navy personnel are more often hospitalized for enteric illnesses than Marine personnel; enlisted persons are at greater risk than officers; aircraft carriers have much higher enteric admission rates than other types of ships or shore commands. Research continues in an effort to identify and understand those factors that influence the distributions of enteric infections in human populations.

Until recently, the organisms responsible for many enteric infections were unknown and even today the causative agents of many enteric diseases go undetected. Several newly recognized pathogens, such as *Campylobacter*, *Aeromonas*, *Yersinia*, *Vibrio parahaemolyticus*, and some types of *E. coli*, have been associated with outbreaks. For many of these pathogens relatively little is known regarding their virulence mechanisms. Also, methods of rapidly detecting some of these microorganisms in human disease do not exist. Finally, although most enteric infections are self-limiting and can be treated readily, adequate prophylactic procedures must be developed to limit the impact of such diseases during military operations.

The enteric disease program at NMRI includes not only a core group of scientists and technicians within the Medical Microbiology Branch, but also includes other naval and civilian personnel at several academic institutions and



Mr. Dave Rollins of NMRI (seated) helps Elisa Elliot and Dr. Benzion Cavarai (left to right) of the University of Maryland lower a probe to measure the dissolved oxygen content and temperature of water.

PERCENT OF TOTAL HOSPITAL ADMISSIONS BY
PRIMARY DIAGNOSIS, 1976

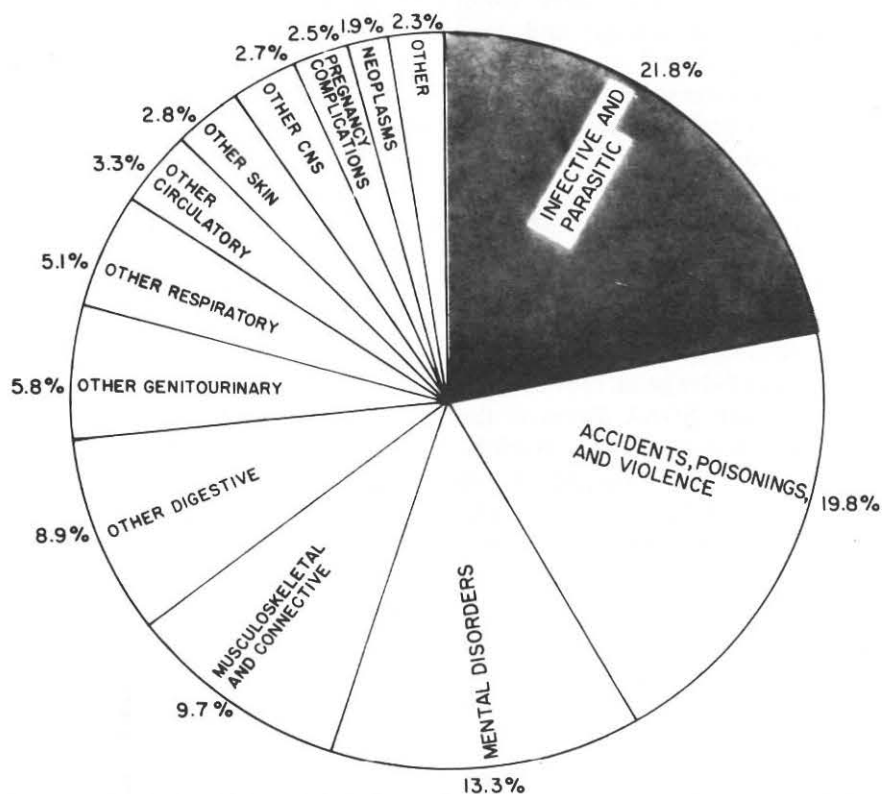


Illustration of the relation of infective and parasitic diseases to other causes of hospitalization of Navy and Marine Corps personnel.

naval commands all over the world. This type of organization permits accumulation and study of isolates of organisms from clinical and environmental sources from many different climates. Also, the program approach knits together the expertise of many individuals so that specialized genetic, biochemical, and physiological tests can be completed rapidly and efficiently.

The attachment of enteric bacteria to the epithelium is probably the most important factor in establishment of enteric disease. Researchers are studying the interaction of these bacteria with the intestinal epithelium. By determining the mechanisms by which microorganisms attach to the intestinal surfaces, they hope to find ways to

block this attachment by pharmacological or immunological means.

The human intestine is in a state of constant peristaltic motion, with fluid flowing over the epithelial surfaces of the intestinal villi. For bacteria to survive and multiply, they must affix themselves to the intestinal surface or they will pass through the intestine without causing disease. Enteric bacteria have several types of specialized structures to help them adhere or bind to the intestinal surface. The first are pili, which resemble long, hair-like filaments and radiate from the surface of the organism, giving the organism the appearance of a bristle-brush. Several types of bacteria, including enteropathogenic *E. coli* (one of the causative agents of

traveler's diarrhea) possess these structures. Several other bacteria have heavy mucopolysaccharide coats around the outside bacterial cell that act as a "sticky glue" to bind the bacteria to the intestinal surface. Prevention of the adherence of enteric pathogens to the intestinal surface may be the best prophylaxis against diarrheal diseases.

Once microorganisms attach to intestinal surfaces, many produce substances called enterotoxins that cause the influx of body fluids into the intestine. In some diseases, such as cholera, this can lead to fatal dehydration. Other microorganisms, instead of producing enterotoxin, damage the epithelial lining of the intestine and some can invade the bloodstream to cause potentially lethal infections.

Presently, members of the enteric disease program are conducting tests with some of the less studied but very important water-borne pathogens. These tests evaluate virulence mechanisms and involve experiments conducted in tissue culture and in animal models. Considerable effort is being directed to producing a better animal model for diarrheal diseases than those currently in use. Inoculation of the live pathogens directly into the small intestines of adult mice shows promise for creating a realistic model for enteric disease. As more is learned about the mechanisms responsible for the activities of the pathogens, means to block toxic actions of the microorganisms can be tested in animal models.

Important new results have recently been obtained from studies of *Aeromonas*, a common microorganism in water that can cause both diarrheal illness and systemic infections. NMRI scientists found that probably not all *Aeromonas* organisms are a serious hazard to man. However, those which can be

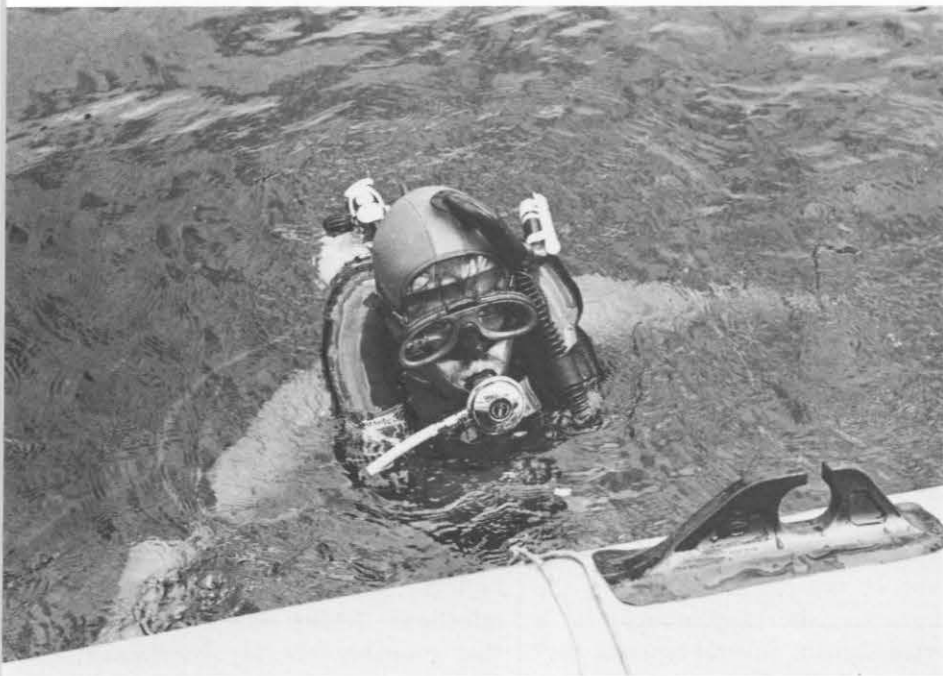
further identified as belonging to species *sobria* rather than *hydrophila* are more likely to be associated with human infections. Clinical isolates of *Aeromonas* and those that are virulent for mice are mostly cytotoxic for tissue culture cells. The cytotoxic property is associated with production of other toxins and enzymes and cytotoxic organisms are generally more heavily pilated that the less toxic isolates more commonly found in the environment. Although most tests for toxins and other virulence factors are more suitable for research than clinical laboratories, two of the routine clinical tests (Voges-Proskauer and lysine decarboxylase) provide strong indicators that toxins are produced by a given isolate.

Identification of the properties of microorganisms will better enable other NMRI scientists to evaluate changes in microorganism populations in aquatic environments. One of the serious hazards faced by Navy diving personnel who work in coastal waters and harbors is ex-

posure to potentially pathogenic water-borne bacteria. These microorganisms enter the water along with untreated sewage and may thrive in polluted water where divers encounter them. In collaboration with a group at the University of Maryland, the enteric disease team is engaged in a cooperative program with the National Oceanographic and Atmospheric Administration (NOAA) to study this problem. Team members, working with Navy divers at the Navy School of Diving and Salvage in Washington, DC, and with NOAA divers at the Atlantic Marine Center, Norfolk, VA, have been engaged in an assessment of the hazard. In addition to the Anacostia River and Norfolk Harbor, the study areas have included the Chesapeake Bay, New York Harbor, and the New York Bight area. Investigators have found so far that pathogens, such as *Vibrio cholerae*, *Vibrio parahaemolyticus*, *E. coli*, and *Aeromonas*, in addition to several significant anaerobic pathogens, are

present in the waters and that divers do in fact become colonized by them. *Aeromonas* is used as an indicator organism of colonization and has been found attached to divers' skin, and ear, nose, and throat membranes, as well as to the divers equipment (e.g., wet and dry suits, masks) in large numbers following dives in polluted waters. The problem is underscored by outbreaks of gastrointestinal disease among divers wearing SCUBA equipment and by cases of *Aeromonas* wound infection in divers. An important phase of the project that follows recognition of the dangers associated with dives in polluted waters is an investigation of methods to protect divers and support personnel. NOAA currently is testing new types of dry suits that would effectively protect diving personnel. Microbiological sampling by NMRI and University of Maryland personnel is verifying the degree of protection. Projected studies will include methods of decontamination and disinfection of equipment so that exposure of support personnel to these hazards is minimized. Results of the project thus far have led to recommendations that have been incorporated into Navy and NOAA diver training programs.

Another factor of the enteric disease program at NMRI involves immunologic studies to achieve rapid detection of pathogens as well as to evaluate the feasibility of development of vaccines against microorganisms or their products. Recently, investigators have completed a prospective study showing that the enzyme-linked immunosorbent assay (ELISA) performed with a single crude *Salmonella typhi* cell envelope antigen can serve as a much improved aid to the diagnosis of salmonella infections (typhoid fever) in an endemic area. Results clearly indicate that the ELISA is a



NOAA diver surfacing after a dive.

Divers and their equipment were sampled for the presence of aquatic pathogens encountered during operations.



suitable alternative to the agglutination test currently used in clinical laboratories because it allows various immunoglobulin (antibody) classes to be measured independently and directly in a simple, sensitive, reproducible fashion. In addition, this NMRI team of investigators has been engaged actively in cooperative efforts with their Navy colleagues at naval medical research units in Cairo, Egypt and Jakarta, Indonesia in the testing

under field conditions of new reagents and procedures developed at NMRI for the improved serodiagnosis of salmonella infections.

An important aspect of the examination of isolates of enteric pathogens is the determination of their sensitivity to antibiotics. Both broth and agar disc dilution procedures are used to evaluate the effectiveness of as many as 14 different antibiotics on every isolate obtained. A continuing investigation of the use-

fulness of therapeutic antimicrobial agents is necessary to provide adequate data for effective control of enteric disease.

Much work lies ahead before the health hazards posed by enteric microorganisms can be considered eliminated. The program at NMRI will have to incorporate the talents of microbiologists, epidemiologists, physicians, biochemists, parasitologists, and many others to reach this important goal. □

Psychodrama With an Alcohol Abuser Population

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Psychodrama is an active form of learning or psychotherapy. Its founder, J.L. Moreno, M.D., developed psychodrama in Vienna, Austria, in the early part of the 20th century. According to psychodrama theory, human growth and development takes place within a specific time and setting and within a specific emotional environment. In order to facilitate such development or to correct some facet of a previous developmental cycle, one must create anew that physical and/or emotional environment. As the environment is re-established during the psychodrama session, the client is encouraged to deal with the "self" anew as he encounters life's conflicts, so as to replace the non-productive or minimally productive behaviors with more satisfactory and fulfilling behaviors.

At the foundation of all therapeutic growth and human development lies the principle of spontaneity. It is this principle of life, which maintains the cosmos about us, and maintains the human species. Spontaneity, by definition, is a new, effective, and appropriate response to any old or new situation in life. All three elements of this definition—new, effective, and appropriate, must be operating for a response to be the result of the spontaneity principles. Present stumbling blocks to one's development, or destructive conflicts which may have resulted from past experiences, are the results of the failure to employ one's spontaneity to enjoy a creative, expansive existence. Therefore, the ultimate goal of psychodrama is to aid one in getting in touch with his spontaneity and teaching him how to use it effectively. Through such use more productive, self-fulfilling behaviors replace ineffective ones, with a growing sense of self-mastery and self-

respect occurring within the individual.

In order to recreate the necessary environment to aid the client in dealing with him/herself, several elements are essential in the psychodrama session; a physical space (in classical psychodrama—the stage), a group of people to serve as role-players, and a psychodrama director/therapist.

The psychodrama action space serves as the area in which one's issue or life-encounter is presented and dealt with. It need not be elaborate and can vary from a space in the center of a room to a rounded three-tiered psychodrama stage with lights and props. What is essential is a locus of ample size in which to work.

The second element of the psychodrama is the group. It is from this group that the members of the client's life-scene are drawn. These fellow group members step into the action space in order to portray the client's mother, father, boss, or any significant individual with whom a conflict or encounter has arisen. At times, the group members play inanimate objects, such as a car, or emotional feelings such as fear, love, etc. They are utilized in the psychodrama as aides, properly called auxillaries, to help facilitate the client's productive movement. The technical term for the client being worked with during the psychodrama session is the protagonist.

The last major element of the psychodrama session is the thera-

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pist. He is called the Director, after the theatrical stage director, and is also a member of the psychodrama group. The task of the Director is to help the protagonist, or a group in a group-centered psychodrama, to define the problems that he/she/they wish to resolve. That desire is then dramatized in the action space. The Director is responsible for leading the psychodrama session, for testing various hypotheses, and most importantly, of aiding the protagonist in exploring alternative approaches to the problem situation. The Director is responsible for helping the protagonist or the group deal with any unknowns which may surface during the session. Therefore, he must be well trained in psychological systems, human personality development, and psychodrama techniques.

In the conducting of the psychodrama session, the Director employs a series of techniques. The five most common are: 1) the soliloquy, 2) the double, 3) the role reversal, 4) the mirror, and 5) the aside. Each has a specific purpose and may be employed at the discretion of the Director.

The Soliloquy is a monologue in which the protagonist orally evokes loud feelings and beliefs he experiences within himself. This is done as if the protagonist is talking to himself. It helps him warm up to or wind down from the conflict or situation he is about to or has encountered.

The Double Technique is one in which a fellow member of the group joins the protagonist on stage and tries to empathize with him. The task of the double is to express the feelings he is picking up from the protagonist as the scene unfolds. These are feelings or thoughts which the protagonist, for a variety of reasons, may not be expressing.

The Role Reversal is a technique wherein the protagonist exchanges

roles with some other significant person in the psychodrama. He may then be able to perceive himself or a situation from another point of view or position.

The Mirror Technique is a feedback exercise wherein the protagonist is asked to observe the scene from offstage. Another group member replaces the protagonist in the scene, giving the protagonist an opportunity to see what his behavior is like and how it is affecting others around him.

Lastly, there is the Aside. Here the action of the psychodrama is stopped or frozen and the protagonist is asked to express his feelings or thoughts. This helps the Director perceive more completely how the drama is affecting the protagonist and gives the protagonist an opportunity to ventilate pent-up feelings.

The psychodrama session has three segments: the *Warm-up*, wherein a problem is sought and the protagonist chosen; the *Action*, in which the problem is dealt with on the stage by role players; and the *Sharing/Conclusion*, or *Integration*, during which the group members share with the protagonist feelings they encountered during the session, or like experiences they have had during their lives.

During the entire session, the Director has sought to employ the spontaneity of the protagonist and the group to deal with the issue. The psychodrama session has sought to present that issue and to develop alternative approaches to it. All members of the psychodrama session—director, protagonist, auxiliaries, and group members—have sought to share with each other as fellow participants in a part of life's developmental cycle.

Each psychodrama session can be a closed unit, seeking to deal with one concern alone. A specific session may be part of an ongoing series, seeking to do more in-depth

therapy. Whether ongoing or merely a single experience, each psychodrama session provides the participant an opportunity to view his world anew, and an occasion to employ his spontaneity in joining in the creative act of life. He becomes responsible for his own mastery of self and the world about him, experiencing both the work and joy of such an endeavor.

The following research study was undertaken to examine psychodrama's effect on a patient population of recovering alcoholics. Psychodrama is also being employed more frequently and with some success in the rehabilitation of substance abusers and criminals as well.

* * *

Alcoholism and the problems associated with heavy alcohol consumption among Navy personnel have received increasing attention over the past several years (Schuckit, 1974; Kolb *et al.*, 1975, and Cahalan, 1975). One recent report (1975) suggests that the percentage of "problem drinkers" in the U.S. Navy may be as high as 38 percent. (Cahalan and Cisin). One response by the Navy to the problem of alcohol abuse has been the development of specialized programs designed to treat alcohol abusers (Kolb *et al.*, 1975). One of these treatment programs is conducted at Alcohol Rehabilitation Centers (ARCs) in which alcohol abusers receive multimodality treatment by Navy and civilian personnel knowledgeable in the field of alcohol abuse treatment. This treatment program is staffed by alcoholism counselors who are recovered alcoholics, group counselors, and is supported by Alcoholics Anonymous. The ARCs also emphasize various genres of therapeutic methods, one of which is psychodrama.

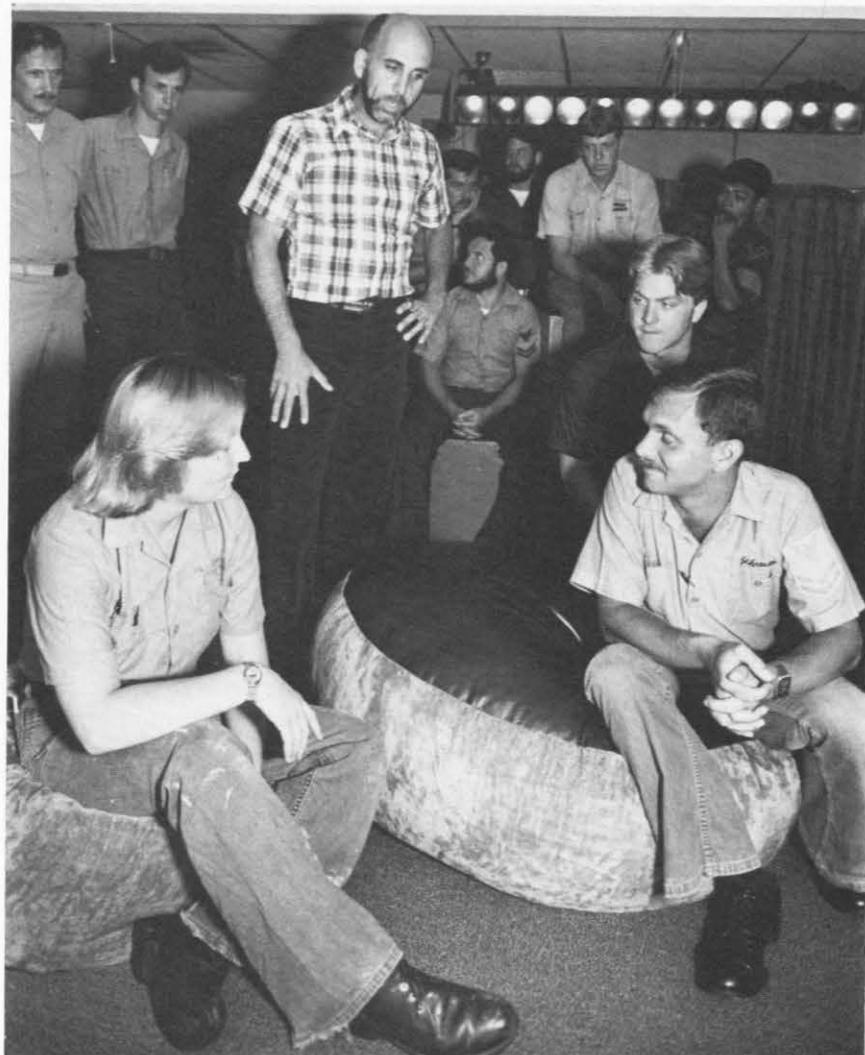
Psychodrama, as a therapeutic method, has been applied to a vari-

ety of treatment populations and settings, among which are drug abusers (Deeths, 1970), police education and training (Barocas, 1972), children (Irwin, 1972), and psychiatric patients (Warner, 1972). While its use with alcoholics is not new, empirical research up to now has been scarce. Published reports which have indicated that psychodrama is an effective treatment modality with the alcohol abuser (Blume, 1971; Van Meulenbrouck, 1972; Blume *et al.*, 1968; Weiner, 1967) have generally been descriptive. However, these reports mention that psychodrama seems to provide a framework in which new behaviors and approaches can be expanded. Psychodrama, with its emphasis on role playing, affords the alcohol abuser population an opportunity to replace old nonproductive attitudes and behaviors with more growthful living styles. Within the therapeutic session, many of these new behaviors can be developed so as to become part of the productive repertoire of the patient population.

The ARC program is considered a successful program in that it has been returning large percentage (78 percent) of alcohol abusers to effective duty (effectiveness defined as being on active duty or having received a favorable discharge and having a positive recommendation for reenlistment at six months following treatment) (Kolb *et al.*, 1975). Since psychodrama is a part of the total treatment program at ARC and the role of this treatment modality is not fully understood empirically, this report is concerned with examining those personality traits among alcohol abusers in treatment which are affected by participation in psychodrama as a therapeutic experience.

Method

Subjects. Subjects were 101 patients who received treatment for



Protagonist (lower right) is aided in difficult moment by his "double" who sits behind him.

alcohol abuse at the Navy's Alcohol Rehabilitation Center, San Diego, between September 1975 and December 1975. Demographic variables which characterize those in treatment who received psychodrama and those who did not receive psychodrama may be found in Table 1. Mean ages of those in the psychodrama and nonpsychodrama groups were 28.5 years and 27.4 years respectively. This difference is not significant; also no differences were obtained between the two groups on the following dimen-

sions: time in service, pay grade, sex, and marital status.

Treatment. The Alcohol Rehabilitation Center is a 75-bed residential facility in which the patients receive multi-modality treatment by alcoholism counselors who are recovered alcoholics with a minimum of two years of sobriety. The primary focus is on group counseling and Alcoholics Anonymous. Individual counseling, gestalt therapy, transactional analysis, psychodrama, and lectures on the medical and legal aspects of alcoholism are

also provided. The treatment typically lasts from six to eight weeks at which time the patients are returned to their previous work assignments.

Subjects were referred to the Center because alcohol abuse had interfered with their work perform-

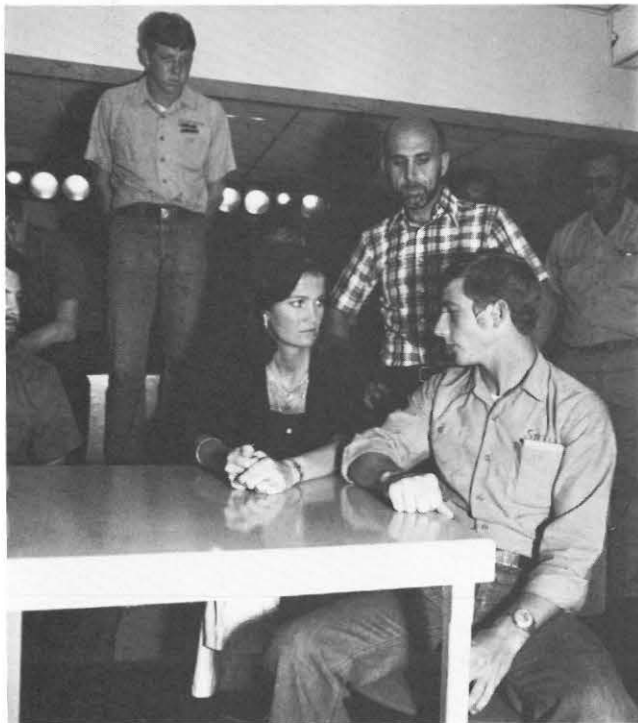
ance and/or conduct. The referral was ordered by the subject's commanding officer at the recommendation of a physician. Prior to treatment, diagnosis of addictive, habitual, or episodic drinking was made by a medical officer at the rehabilitation center, employing Navy De-

partment guidelines for the clinical recognition of drug abuse.

Subjects were included in this study if they completed the treatment program and pre- and post-treatment testing packages were complete. Subjects were referred to the psychodrama phase at the discretion of the subject's group counselor. ARC San Diego has seven ongoing counseling groups. Two patients from each group are selected into the psychodrama tract, which consists of four weekly three-hour psychodramas. The psychodramas are typically group-centered; however, protagonist-centered psychodramas are pursued as the occasion arises. The difference between these two forms of psychodrama is that group-centered psychodrama has as its primary concern the theme of the group and specific issues relating to that theme. In a group-centered psychodrama, a protagonist is selected because he best represents that



Protagonist confronts his drinking buddies.



An expression of sadness as protagonist makes amends to "wife" for past pain he inflicted.



Reconciliation dialogue between "husband" and "wife."

group's theme and issues. The protagonist-centered psychodrama, as developed by Moreno, (1972, 1975) has as its primary concern the protagonist or patient and his specific therapeutic issue. The group aids in working with the protagonist as role players and observers and through him participate in a therapeutic experience as the issues of the protagonist's session affect their own lives.

During the psychodrama, patients not involved in the psychodrama tract were involved in small group therapy. With this exception, treatment was identical for both groups.

Upon admission to ARC, patients were administered the Comrey Personality Scales, a short form of the MMPI (the Mini Mult), and the State Trait Anxiety Inventory, A-State Scale. These tests were re-administered prior to a patient's discharge from the program. Prior to discharge from treatment, a post-treatment prognosis for each patient was determined by the ARC staff.

Comrey Personality Scales—The Comrey Personality Scales (1970) are a self-report, multiple choice questionnaire that generates 10 scores: Trust vs Defensiveness (T), Orderliness vs Lack of Compulsion (O), Social Conformity vs Rebelliousness (C), Activity vs Lack of Energy (A), Emotional Stability vs Neuroticism (S), Extraversion vs Introversion (E), Masculinity vs Femininity (M), Empathy vs Egocentrism (E), Validity Check (V), and Response Bias (R).

Mini Mult—The Mini Mult (Kincannon, 1968) is a short form of the Minnesota Multiphasic Personality Inventory (MMPI). It was designed to provide objective assessment for major personality characteristics that affect personal and social adjustment. It yields three validity and eight clinical scales: L, F, K (the

	Psychodrama Group		Nonpsychodrama Group		X ²
	Number	Mean	Number	Mean	
Age (in years)		28.5		27.4	
17-20	1		10		
21-25	13		19		
26-35	13		28		
over 35	9		8		
Total	36		65		6.22 (ns)
Time in Service (in years)		7.8		7.2	
0-2	8		12		
3-4	3		13		
5-6	9		13		
8+	16		27		
Total	36		65		3.23 (ns)
Pay Grade					
Enlisted E1-E3	10		24		
Enlisted E4-E6	19		34		
Enlisted E7-E9	4		5		
Officer 01-06	3		2		
Total	36		65		2.18 (ns)
Sex					
Male	34		64		
Female	2		1		
Total	36		65		1.30 (ns)
Marital Status					
Married	10		25		
Single	17		26		
Sep/Div	6		4		
Widowed	3		10		
Total	36		65		4.53 (ns)
ns = not significant.					

validity scales); Hypochondriasis (Hs), Depression (D), Hysteria (Hy), Psychopathic Deviate (Pd), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), and Hypomania (Ma).

State-Trait Anxiety Inventory, A-State Scale—The State-Trait Inventory (STAI) is a measure of State-Trait Anxiety (Spielberger, 1970). Only the State Anxiety Scale A-State Scale) was employed in this

study. State Anxiety refers to a transitory emotional state that varies in intensity and fluctuates over time. It is characterized by subjective feelings of tension and apprehension. The level of A-State tends to be high in circumstances that are perceived to be threatening.

Prognosis. Prior to discharge, the ARC staff met and discussed each patient completing treatment. Based upon consensual agreement, a prognosis for post treatment disposition of excellent, good, fair, or poor was given and entered on the patient's medical record.

Data Analysis. Differences between the two treatment groups were assessed by t-tests for independent means and chi squares.

Results

Demographic Characteristics. Demographic variables which characterized those in treatment for alcohol abuse who received psychodrama and did not receive psychodrama may be found in Table 1. No significant differences were obtained on any of the variables.

Comrey Personality Scale. Pre-treatment scores indicate that the group which received psychodrama scored significantly different on five

of the 10 Comrey scales (see Table 2). Those who received psychodrama scored significantly lower on Response Bias ($p < .05$), indicating that this group was less concerned with giving socially desirable answers or having themselves appear to be "nice" people. Those individuals who received psychodrama also scored significantly lower on the scales that measure Trust ($p < .01$), Activity ($p < .05$), Emotional Stability ($p < .01$), and Extroversion ($p < .05$).

Post-treatment Comrey Scores indicated that there were no significant differences between the groups subsequent to treatment.

Pre/post-treatment change scores for the psychodrama group indicated that during the course of treatment, they became significantly more trusting ($p < .001$), more active ($p < .05$), more emotionally stable ($p < .001$), and more extroverted ($p < .01$). Similar findings were evident for pre/post-treatment change scores for the nonpsychodrama group, who became significantly more trusting ($p < .001$), more emotionally stable ($p < .001$), and more extroverted ($p < .05$) than before treatment. One pre/post-treatment change score significantly differentiated the psychodrama

from the nonpsychodrama group: the psychodrama group changed significantly more on the measure of Activity ($p < .05$) than did the nonpsychodrama group.

Mini Mult. No significant differences were found between the groups, either pre-treatment or post-treatment, on any of the scales (see Table 3). Pre/post-treatment change scores for the psychodrama group indicated that they significantly decreased hypochondrical tendencies ($p < .05$), psychopathic deviance ($p < .05$), paranoia ($p < .01$), anxiety and obsessive tendencies ($p < .001$), schizophrenic ideation ($p < .001$), and hypomania ($p < .01$).

An analysis of pre/post-treatment change scores for the nonpsychodrama group indicated that over treatment they significantly decreased their scores in the F Scale ($p < .01$), and on the scales that measure hypochondriasis ($p < .01$), depression ($p < .01$), psychopathic deviance ($p < .001$), anxiety and obsessive thinking ($p < .05$), and schizophrenic ideation ($p < .05$).

Analysis of psychodrama/nonpsychodrama, pre/post-treatment change score differences indicated that the psychodrama group changed significantly more on the K

TABLE 2. Pre/Post-Treatment Comrey Scores for Psychodrama (N = 36) and Nonpsychodrama (N = 65) Participants

Scales	Pre-Treatment				Post-Treatment				Pre-Treatment t	Post-Treatment t	Pre/Post-Treatment Change Score		Pre/Post-Treatment Change Score Difference t
	Psychodrama Mean	SD	Non-Psychodrama Mean	SD	Psychodrama Mean	SD	Non-Psychodrama Mean	SD			Psychodrama t	Non-Psychodrama t	
Validity	14.38	5.93	16.82	6.70	16.89	6.95	17.66	6.37	-0.88	-0.53	-1.62	-0.72	1.37
Response Bias	44.46	8.33	48.79	7.77	46.63	6.94	48.68	7.01	-2.56*	-1.38	-1.19	0.08	1.43
Trust	72.30	13.01	79.85	11.93	85.94	12.39	87.45	11.79	-2.87**	-0.58	-4.49***	-3.58***	1.90
Orderliness	90.46	12.97	93.08	13.19	90.11	12.95	93.19	15.36	-0.96	-1.04	0.11	-0.04	-0.44
Compulsiveness	88.43	12.34	88.55	13.88	90.31	12.44	91.57	12.17	-0.04	-0.48	-0.63	-1.30	-0.44
Activity	84.03	16.25	91.48	14.90	93.43	13.56	95.55	14.84	-2.27*	-0.71	-2.63*	-1.53	2.00*
Emotional Stability	74.24	17.27	83.45	15.28	93.71	16.80	95.40	16.25	-2.67**	-0.48	-4.78***	-4.23***	1.71
Extroversion	66.57	21.47	77.79	21.91	81.49	21.17	86.23	20.45	-2.49*	-1.39	-2.93**	-2.33*	1.20
Masculinity	80.70	13.47	84.51	12.67	82.46	11.56	84.06	10.96	-1.39	-0.66	-0.59	0.21	1.35
Empathy	88.05	14.98	89.92	16.80	90.71	12.66	91.94	14.85	-0.57	-0.42	-0.81	-0.71	0.51

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 3. Pre/Post-Treatment Mini Mult Raw Scale Scores and State-Trait Anxiety Measure Scores for Psychodrama (N = 36) and Nonpsychodrama (N 65) Groups

Scales	Pre-Treatment				Post-Treatment				Pre-Treatment t	Post-Treatment t	Pre/Post-Treatment Change Score		Pre/Post-Treatment Change Score Difference t
	Psychodrama Mean	Non-Psychodrama SD	Psychodrama Mean	Non-Psychodrama SD	Psychodrama Mean	Non-Psychodrama SD	Psychodrama Mean	Non-Psychodrama SD			Psychodrama t	Non-Psychodrama t	
L	7.30	1.84	7.02	2.10	6.97	1.56	7.23	1.67	0.69	-0.76	0.81	-0.62	0.90
F	17.54	3.11	18.25	3.58	15.85	2.71	16.66	2.81	-1.04	-1.38	2.43*	2.77**	0.03
K	12.78	2.22	13.43	2.40	14.46	2.43	13.39	2.72	-1.36	1.97	-3.01	.09	-2.71**
Hs	17.05	2.45	16.85	2.58	15.31	3.36	15.48	2.85	.38	-.25	2.46*	2.82**	.31
D	28.54	4.62	27.89	4.14	26.77	4.00	26.13	2.52	.70	.84	1.72	2.89**	-.10
Hy	30.51	2.67	30.39	2.69	30.77	2.72	29.66	3.06	.22	1.82	-0.40	1.41	-1.07
Pd	24.08	2.80	23.85	2.95	22.23	2.79	22.13	2.39	.39	.18	2.77**	3.59***	.11
Pa	18.30	2.77	17.48	2.87	16.17	2.50	16.32	2.60	1.40	-.28	3.38**	.55	1.50
Pt	21.14	5.65	18.88	5.73	16.26	5.50	16.31	5.69	1.91	-0.04	3.66***	2.52*	1.56
Sc	34.00	5.92	33.41	5.77	28.97	6.07	30.77	7.32	0.48	-1.29	3.51***	2.23*	1.61
Ma	19.38	2.50	19.06	2.49	17.46	2.76	18.34	2.16	0.62	-1.61	3.04**	1.74	1.80
State-Trait Anxiety Measure	51.73	12.18	47.28	11.37	36.80	13.19	35.47	10.09	1.80	1.51	4.91***	6.15***	1.71

* $p < .05$.

** $p < .01$.

*** $p < .001$.

scale ($p < .01$), in the direction of becoming more defensive and controlled than the nonpsychodrama group.

State-Trait Anxiety Measure. The psychodrama and nonpsychodrama group did not score significantly different either pre-treatment or post-treatment on this measure (see Table 3). However, analysis of the pre/post-treatment change scores within each group indicated that the psychodrama and the nonpsychodrama groups decreased their anxiety significantly ($p < .001$ for both groups). Analysis of pre/post-treatment change score differences between the two groups yielded no significant difference.

Post-Treatment Prognosis. No significant "between group" differences were demonstrated with this variable (see Table 4).

Matched Pre-Treatment Comrey Personality Scale. Since five pre-treatment Comrey scale scores significantly differentiated the psychodrama and nonpsychodrama groups, two additional comparisons with these groups were made to determine how much change occurred between them over treatment when they were matched on pre-treat-

ment Comrey scores. Hence a sub-sample of nonpsychodrama ($n = 15$) participants was matched to the psychodrama group ($n = 36$) and a sub-sample of the psychodrama participants ($n = 15$) was matched to the nonpsychodrama group's ($n = 65$) pre-treatment Comrey scores. Results of the former match are presented in Table 5. Although the validity scale significantly ($p < .05$) differentiated the two pre-treatment populations, both t-scores are within the validity range for this scale established by Comrey (1970); the remaining scale scores demonstrated no statistical difference. However, post-treatment Comrey scores indicated that the psychodrama group was significantly more trusting ($p < .05$), active ($p < .05$), and emotionally stable ($p < .05$) subsequent to treatment than the sub-population of nonpsychodrama participants.

Results of the matched sub-sample of psychodrama participants to the nonpsychodrama participants' pre-treatment Comrey scores are presented in Table 6. No statistical difference between the two groups is noted in either pre- or post-treatment scores.

Discussion

The major finding of this study is that although pre-treatment Comrey scores demonstrated that the patients in the psychodrama group possessed significantly different personality profiles, (i.e., scored lower on Response Bias, Trust, Activity, Emotional Stability, and Extroversion) than patients in the nonpsychodrama group, nevertheless post-treatment Comrey scores demonstrated that there were no significant differences between the two groups. Another important set of findings was that when a sub-sample of nonpsychodrama participants was matched to the psychodrama group's pre-treatment Comrey scores, post-treatment results indicated that the psychodrama group was significantly more trusting, active, and emotionally stable than the nonpsychodrama sub-sample. Also, when a sub-sample of psychodrama participants was matched to the nonpsychodrama group's pre-treatment Comrey scores, the post-treatment trend was in the direction of the psychodrama sub-sample being more trusting, active, emotionally stable, extroverted, and empathic. These

TABLE 4. Number of Post-Treatment Prognosis Ratings for Psychodrama (N = 34) and Nonpsychodrama (N = 61) Groups

Prognosis	Psychodrama	Nonpsychodrama	χ^2
Excellent	2	1	
Good	14	31	
Fair	13	19	
Poor	5	10	
Total	34	61	2.04 (ns)

ns = not significant.

facts, added to the findings that there were no significant differences between the two groups on post-treatment prognosis ratings, suggests that psychodrama therapy with those in the psychodrama groups contributed, at least, to their "catching-up" emotionally and in personality development to those individuals who did not receive psychodrama.

Traditional psychodrama theory and technique may account for these positive increases as measured by the Comrey. One of the major factors in psychodrama is that as psychodrama progresses, it

TABLE 5. Pre/Post-Treatment Comrey Scores for Psychodrama (N = 36) and a Sub-sample of Nonpsychodrama (N = 15) Participants Matched to the Psychodrama Group's Pre-Treatment Scale Scores

Comrey Scales	Pre-Treatment				Post-Treatment				Pre-Treatment t	Post-Treatment t
	Psychodrama Mean	SD	Non-Psychodrama Mean	SD	Psychodrama Mean	SD	Non-Psychodrama Mean	SD		
Validity	14.38	5.93	18.93	7.66	16.89	6.95	20.27	7.94	-2.24*	-1.49
Response Bias	44.46	8.33	45.65	8.42	46.63	6.94	46.53	7.62	-0.46	0.15
Trust	72.30	13.01	74.07	13.31	85.94	12.39	78.67	10.92	-0.43	1.94*
Orderliness	90.46	12.97	87.93	15.99	90.11	12.95	87.40	16.50	0.58	0.61
Compulsiveness	88.43	12.34	84.60	10.61	90.31	12.44	87.20	9.68	1.03	0.85
Activity	84.03	16.25	82.20	10.62	93.43	13.56	85.27	8.96	0.39	2.10*
Emotional Stability	74.24	17.27	74.40	17.85	93.71	16.80	84.27	18.83	-0.03	1.73*
Extroversion	66.57	21.47	63.93	14.62	81.49	21.17	79.40	15.91	0.43	0.34
Masculinity	80.70	13.47	83.20	7.21	82.46	11.56	84.60	9.95	-0.67	-0.61
Empathy	88.05	14.98	84.00	21.61	90.71	12.66	85.80	15.83	0.75	1.15

* $p < .05$.

TABLE 6. Pre/Post-Treatment Comrey Scores for Nonpsychodrama (N = 65) and a Sub-sample of Psychodrama (N = 15) Participants Matched to the Nonpsychodrama Group's Pre-Treatment Scale Scores

Comrey Scales	Pre-Treatment				Post-Treatment				Pre-Treatment t	Post-Treatment t
	Psychodrama Mean	SD	Non-Psychodrama Mean	SD	Psychodrama Mean	SD	Non-Psychodrama Mean	SD		
Validity	16.27	7.07	16.82	6.70	16.71	7.52	17.66	6.37	-0.28	-0.48
Response Bias	48.73	7.81	48.79	7.77	49.86	8.08	48.68	7.01	-0.03	0.56
Trust	77.73	8.15	79.85	11.93	91.29	10.48	87.45	11.79	-0.65	1.15
Orderliness	96.00	13.70	93.08	13.19	92.71	14.14	93.19	15.36	0.76	-0.11
Compulsiveness	90.73	10.01	88.55	13.88	93.14	10.87	91.57	12.17	0.57	0.44
Activity	87.87	12.53	91.48	14.90	96.86	14.74	95.55	14.84	-0.86	0.31
Emotional Stability	84.93	15.48	83.45	15.28	101.79	14.24	95.40	16.25	0.33	1.39*
Extroversion	73.20	16.74	77.79	21.91	89.21	18.95	86.23	20.45	-0.43	0.51
Masculinity	80.40	12.03	84.51	12.67	85.14	10.27	84.06	10.96	-1.13	0.33
Empathy	90.00	16.37	89.92	16.80	95.86	16.37	91.94	14.85	0.02	0.89

* $p < .05$.

elicits a high level of trust and sharing among group members (Van Meulenbrouck, 1972; Weiner, 1967). The psychological investment in the controlled atmosphere of psychodrama encourages the development of risk-taking skills through which participants can find a means of releasing themselves from old, rigid attitudes and roles, which have been dysfunctional, and replacing these nonproductive attitudes and roles with new and more productive ones. Such a process allows a participant to become more honest and genuine. Also, the need to actively participate in psychodrama as either its star or a role player demands that the participants take risks, become responsible for their actions, and as a consequence, experience the here and now success of the issue that is being dramatized.

By the very nature of the psychodrama process, one cannot remain isolated from the action. Even if one "seems" to be a nonparticipant, silent group member, his destructive life patterns are audibly and visually presented before him, via the roles taken by his fellow group members. The impact and consequences of that psychodrama presentation are equally his, as the other group members. To remain in his shell of fear and isolation is very difficult. Growth may take place in spite of himself.

Van Meulenbrouck (1972) mentions that two of the strongest denominators describing the dynamics of many alcoholics are passivity and denial. Psychodrama provides an "ideal vehicle" for reversing both of these. Decreases in passivity and denial would seem to allow for an increase in activity and emotional stability, especially since an important aspect of psychodrama treatment (Blume, *et al.*, 1968) is helping the alcohol abuser to understand the motivation behind his

drinking and the way alcohol use/abuse fits into his patterns of interpersonal behavior. There is some support for this theoretical position in the fact that the psychodrama group obtained a significantly greater change score on the Activity scale of the Comrey and the K scale of the Mini Mult implying, for them, a greater movement toward more activity and away from denial. Lastly, the psychodrama director, the group, and other auxiliaries permit the protagonist and all group members to help each other, (Blume *et al.*, 1968; Weiner, 1967) which when combined with the aspects of psychodrama already mentioned, would seem to account especially for the increase on the Extroversion scale of the Comrey.

Significant pre/post-treatment change scores on the Comrey, Mini Mult, and the Anxiety Measure for patients in both the psychodrama and nonpsychodrama groups were consistent with significant change scores for patients in the Navy's Alcohol Rehabilitation Program as a whole and as reported elsewhere (Bucky, 1975; Bucky *et al.*, 1975). Additional studies are needed in explaining the role of psychodrama in the rehabilitation of alcohol abusers in treatment. Such studies are currently underway at the Navy's Alcohol Rehabilitation Center; however, if this role is to be understood, research from a variety of alcohol treatment facilities is indicated.

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Periodontal Disease Among Naval Recruits

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Periodontal diseases are generally considered to be so prevalent and widespread that studies of occurrence and distribution (epidemiology) must assess severity in order to determine the significance on a public health basis.⁽¹⁾ Epidemiologic studies might assess tooth mortality and its causes, or correlations with age, sex, race, hygienic practices, or other habits, relationship to diet, nutrition and systemic health, or the effects of variables in clinical trials. Studies have related periodontal diseases to socioeconomic factors, but recently there has been interest in the social and economic impact of periodontal disease⁽²⁾—the dental care costs, emotional and physical strain on people, and the cost of absenteeism from work. The significance of dental and oral diseases in a naval population is related to their impact on the readiness of men and women for sustained operations in performance of the defense mission of the Navy.

The earliest reported studies of Navy personnel were concerned with treatment needs and the time required to provide the treatment. Further, it was believed important to determine if there were certain persons who could be identified as requiring more treatment than others, so that operational plans could be made appropriate to the work load. Schlack⁽³⁾ found in a survey of 71,015 naval personnel examined in 1942 that a small percentage of persons tended to have most of the cavities needing to be filled. He found that persons from New England had more filled teeth and more unfilled cavities than those from Arkansas, Louisiana, Oklahoma, and Texas. He concluded that the region of birth was more a determinant of treatment needs than the number of fillings already done. Application of naval dental standards to personnel entering the service in 1941 resulted in the rejection of seven percent, and so only about 10 percent of the subjects in Schlack's

study population needed any teeth extracted. Those persons from New England were assumed to need teeth extracted because of complications arising from dental caries, while those from south central regions "possibly for periodontosis." No other consideration of periodontal diseases was reported by Schlack.

Massler, Ludwick, and Schour⁽⁴⁾ reported on 4,043 white recruits at Great Lakes, ages 17 to 21, who were predominantly central, northeastern, and southeastern states, during the period 1949 to 1950. The DMF (Decayed, Missing, and Filled) was found to be 11.3, and 66 percent were affected by gingivitis. Using the PMA (Papillary Marginal Attached) Index, the distribution of gingivitis was 4.05 P gingival units, 1.15 M, and no A units, with a P+M+A mean of 5.2. Of the 66 percent found to have gingivitis, the degree of severity was reported as: very mild 16.5 percent, mild 16.2 percent, moderate 15.5 percent, severe 8.6 percent, and very severe 8.9 percent. There was no significant relationship found between the prevalence of DMF and gingivitis in individuals. There was a significant relationship between dental caries experience and region, and again the northeastern area had the highest prevalence. No geographic relationship was found for gingivitis. The community size of the subject's residence had no apparent relationship to dental caries or gingivitis. The ages were so close together that there was no significant effect shown on dental diseases.⁽⁵⁾ They also found no relationship between smoking and gingivitis.⁽⁶⁾

Cross⁽⁷⁾ reported on the crew of a heavy cruiser, which had a cross-section of ages and ranks of personnel. Of the 1,570 officers and enlisted men, those with less than 12 months of service (primarily recent recruits) had the largest number of surfaces to be restored. Sixty men (4 percent) required the intervention of a dentist because of an acute soft tissue condition or a condition of extreme bone loss. Cross determined that gingival disease was related to oral hygiene. Those with mild gingivitis (15 to 25 percent) he believed could be made healthy by the individual's own effort to remove food film and debris on the teeth. He concluded that

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regular naval personnel with over four years service had a better general dental condition than reserves recently recalled to active duty.

A survey of military women at Great Lakes(8) reported that only about 15 percent were free of gingivitis. The mean scores found were P 8.47, M 9.64, A 0.02, and mean P+M+A was 18.29. There was no relationship found between their DMF and PMA.

Hellman, Ludwick, and Oesterling(9) reported on dental needs and treatment of all Navy and Marine Corps recruits in 1956. There was 90.3 percent who needed fillings, 31.0 percent needed extractions, 6.8 percent required some form of periodontal or gingival treatment, and 5.3 percent needed an essential prosthetic appliance. Recruits received about 5.1 periodontal treatments per 100 men. Navywide, 482,473 periodontal treatments were provided to personnel on active duty. The authors discussed the loss of dental standards in 1941, when dental officer strength was based on 2 per 1,000 for the purpose of health maintenance, and how the lack of standards for enlistment created a situation whereby the total needs of personnel on active duty could not be met.

In a study of the effect of unsupervised toothbrushing on 154 naval recruits at Great Lakes(10) the gingival health was found to be worse than previously reported in 1950.(4) In 1954, the mean scores were P 6.0, M 3.3, A 1.3, and P+M+A 10.6. The authors ascribed the increase to lowered dental health standards for enlistment. There were 21 percent with no gingivitis, 45.4 percent with mild gingivitis, 29.2 percent moderate, and 3.8 percent severe gingivitis. They reported that only 11.8 percent of their subjects showed any significant improvement in their hygiene. The PMA of the group indicated no significant gingival improvement after 15 weeks.

Rovelstad, *et al.*,(11) studied the condition of 2,027 naval recruits at Bainbridge, MD, in 1956. The group studied was about a 13 percent random sample of new recruits in a six-month period. Most subjects were from Pennsylvania, New Jersey, and New York, and only 7.5 percent were high school graduates. Half the group claimed to have sought regular dental treatment, while one-fifth stated they never or hardly ever went to a dentist. Rovelstad found a DMFT (Decayed, Missing, and Filled Teeth) of 13.6, with one-sixth having a DMFT over 20. The oral hygiene evaluation was 17.1 percent "poor" and 46.6 percent "excellent," with the rest given as "fair." The distribution of gingivitis was 20.8 percent none, 32 percent possible, 24.5 percent probable, 16 percent moderate, and 6.5 percent severe. The authors concluded the dental health of new recruits was deplorable.

Davies, *et al.*,(12) surveyed 1,209 young Navy enlisted men reporting for electronics school at Treasure Island, San Francisco. Using periodontal indices, and a detailed examination of every tenth subject, they allotted the men into four treatment classes. Class I (78.2 percent) were free of gingivitis and needed only a prophylaxis and hygiene instruction by auxiliary personnel, Class II (14.5 percent) had mild periodontal disease within the treatment capability of a general dental officer, Class III (6.4 percent) had moderate to severe periodontal disease needing the services of a periodontal specialist, and Class IV (0.7 percent) were edentulous from or had nonmanageable periodontal disease. There was no significant finding in regard to geographic origin. The authors concluded that there were a larger number of patients per capita with advanced periodontal disease than had been previously recognized, and that the disease started at a much younger age than was generally believed. They recommended a greater emphasis in periodontal training of the general practitioner.

Pridgeon(13) described the developing programs in the Navy for training in periodontics. Though the programs were slow to get started, they were being driven by the overwhelming number of dental defects in naval recruits.

Rovelstad(14) conducted a survey of dental conditions in 2,118 recruits at Great Lakes in 1966, similar to the previous study at Bainbridge. The DMFT was found to be 12.3, with the slight improvement in average caries experience (compared to 1956) due to fewer missing and decayed teeth. Oral hygiene was scored good = 1, fair = 2, and poor = 3. The mean values for the group were 1.3. Scores were higher for those who did not brush, those who complained of bleeding gums and bad breath, and those who were from broken homes. Gingivitis was scored 0 to 4 for each of the 10 anterior interdental papillae (0-40 range). There was a trend to lower scores when the parents were more educated and for those who had a history of frequent dental visits. Subjects who didn't brush had a mean index of 23.9; brushing 1 x day, 18.0; 2 x day, 16.0; 3 x day, 16.3; and 4 x day, 14.9. The mean for all 2,118 subjects was 17.5. Subjects with broken homes had a tendency to higher scores. Unfortunately, we have no analysis of the significance of the findings.

Shiller(15) described the dental status of 298 men, a random sample of those reporting for submarine school at New London. Since they had received special attention for dental care during recruit training, they had few unfilled decayed teeth. Their Periodontal Index was 0.13. Shiller stated he had previously surveyed recruits and found a PI of 0.34. The Oral Hygiene Index was

1.779, while that of recruits had been 2.53. There was a significant relationship of hygiene with periodontal health. Besides the special dental care these men received, Shiller believed that their intelligence, educational level, and learning ability might account for a better level of dental health.

Keene(16) reviewed previous studies on recruits, and related he had found a DMFT of 11.2 during 1970-72. The prevalence of caries-free recruits was seen to be slowly rising and related to public water fluoridation. Periodontal diseases were not discussed.

Stepnick(17) examined 477 naval recruits at San Diego. He reported that 20 percent had good oral hygiene, 46 percent fair, and 34 percent poor oral hygiene. Their means for OHI-S were 1.3 ± 0.6 (S.D.), DI-S 1.2 ± 0.5 , and CI-S 0.2 ± 0.2 . These correlated well ($r = +0.50$, $p = 0.001$) with a PDI of 1.1 ± 0.8 . Periodontal disease was present in approximately 75 percent of the recruits examined. Their DMFT was 11.4, and did not have strong correlations with oral hygiene or periodontal disease. Stepnick concluded, as have all previous studies on naval recruits, that they have a high level of oral disease, including periodontal disease.

The Navy Periodontal Screening Examination was instituted in the naval service in 1969 and it was described in the literature by Grossman and Fedi in 1974. (18) Elliott and Bowers(19) used modifications of the Navy Periodontal Disease Index (NPDI) and Navy Plaque Index (NPI) in studies of oral physiotherapy at the Naval Academy. Although the standard NPDI and NPI were in common use in the Navy, the first investigation which used them was published in 1977. (20) That report found periodontal disease present in 98 percent of young enlisted men reporting for dental sick call. The correlation between the NPDI and NPI was $r = +0.55$, $p = 0.01$, while the gingival portion of the NPDI and the NPI had a correlation of $+0.75$, $p = 0.01$.

The purpose of this survey was to determine the present dental health status of the naval recruit which might be used to determine priorities of care, manpower development, and to establish or expand preventive and treatment services.

Methods and Materials

Naval recruits have always been volunteers for military service, thus this report presents data on a highly selected population. The naval recruits surveyed reported for training at the Naval Training Center, Great Lakes, from September 1975 to August 1978. Recruits were organized into companies of about 70 to 80 men as they arrived. One company a week was selected and by a table of random numbers five

subjects were selected for dental examination. In addition, 10 subjects with the potential to attend a military specialty training school at Great Lakes following recruit training were selected for examination each week. All subjects were men, aged 17 to 27 years and they were asked to provide information on their city and state of residence, and whether they were high school graduates.

On their third day, before any dental procedures, they received a dental and oral examination. Examiners used dental chairs and dental operating lights, dental mirrors, No. 23 dental explorers, and periodontal probes with Williams markings.† Gauze sponges and compressed air were used to dry tissue, as necessary. Dental posterior bite-wing x-rays, and panoramic and periapical x-rays, as indicated, were taken on each subject. The teeth were numbered from 1 to 16 in the upper arch, starting with the right third molar, and from 17 to 32 in the lower arch, ending with the right third molar. Findings for dental caries, missing teeth, restorations, periodontal diseases, mucosal lesions, plaque and calculus deposits were dictated to assistants and recorded on forms for each subject.

During the first year of the survey, one examiner observed all periodontal findings. An additional examiner was then given theoretical and practical training until examination findings showed over 80 percent inter-examiner comparability. During the course of the survey, subjects were returned to the examiners in a blind order for repeat examinations to assess intra-examiner consistency.

The first portion of the examination was a diagnostic opinion of periodontal conditions, ordered into a hierarchy from healthy gingivae to generalized chronic periodontitis. Steps in this ordinal ranking were on the basis of inflammatory changes limited to interdental gingival papillae, to involvement of marginal tissues,* and finally into attached gingivae with periodontal pockets formed.** Also, determination was made as to a localized or generalized distribution of the periodontal condition. If any one dento-gingival area was involved in a segment, that segment was considered to be involved. All six dental segments had to be involved, both on facial and lingual aspects, for the determination of generalized involvement. Additional diagnoses were recorded, when present, for necrotizing gingivitis,*** primary herpetic gingivostomatitis,**** pericoronitis

†PW, Hu-Friedy, Chicago, IL 60618

*ICD-DA No. 523.10, WHO Geneva, 1973.

**ICD-DA No. 512.41

***ICD-DA No. 101.X0.

****ICD-DA No. 054.X1.

PART I - NAVY PERIODONTAL DISEASE INDEX

INSTRUCTION

For each tooth examined, record score on the adjacent chart as follows:

- Obtain** GINGIVAL SCORE and enter figure in gingival score column.
Obtain POCKET SCORE and enter figure in pocket score column.
Add GINGIVAL SCORE to POCKET SCORE and enter sum in TOOTH SCORE column.

To amend chart: If the tooth designated on the chart is missing, strike through indicated number and insert substituted tooth number beside it. If 3, 12, 19, or 28 is missing, substitute the next most posterior tooth. If 9 or 25 is missing, substitute the nearest incisor in the arch; or where all incisors are missing from the arch, substitute a cuspid.

To determine GINGIVAL and/or POCKET score:

Gingival Score

(Dry tissues around tooth before scoring)

- 0** Gingival tissue is normal in color and tightly adapted to the tooth—tissue is firm and no exudate is present.
1 Inflammatory changes are present, but do not completely encircle the tooth. Changes may include one or a combination of the following:
 Any change from normal gingival color
 Loss of normal density and consistency
 Slight enlargement or blunting of the papilla or gingiva
 Tendency to bleed upon palpation or probing
2 Inflammatory changes listed above completely encircle the tooth.

Pocket Score

With calibrated periodontal probe take six measurements of each designated tooth—mesial, middle, and distal areas of the facial and lingual surfaces. The greatest single measurement determines the Pocket Score for the tooth.

- 0** Probing reveals sulcular depth not over 3 mm.
5 Probing reveals pocket depth greater than 3 mm, but not over 5 mm.
8 Probing reveals pocket depth greater than 5 mm.

DIAGNOSTIC AND TREATMENT RECOMMENDATIONS:

NPDI SCORE of 0 to 2: Oral prophylaxis, cariostatic agents, plaque control instruction.

NPDI SCORE of 5 to 7: Complete oral examination, periodontal treatment, cariostatic agents, plaque control instruction by general practitioner.

NPDI SCORE of 8 to 10: Complete oral examination, periodontal treatment initiated by general practitioner, with possible referral to periodontist.

TOOTH NO.	GINGIVAL SCORE	POCKET SCORE	TOOTH SCORE
3			
9			
12			
19			
25			
28			

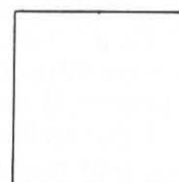
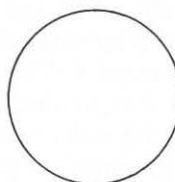
TOTAL SCORE FOR ALL TEETH _____

NPDI SCORE

Record in circle highest score for any one tooth.

NPDI TOTAL

Record in square total score for all teeth.



PLACE OF EXAMINATION

EXAMINER

DATE

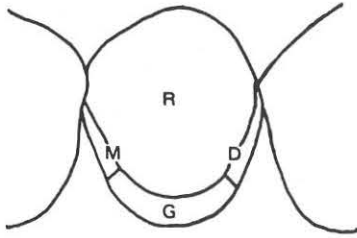
PATIENT IDENTIFICATION

SEX	GRADE, RATE, OR POSITION	ORGANIZATION UNIT	COMPONENT OR BRANCH	SERVICE, DEPT., OR AGENCY
PATIENT'S LAST NAME—FIRST NAME—MIDDLE NAME			DATE OF BIRTH (Day-Month-Year)	SOCIAL SECURITY NO.

FIGURE 1. The Navy Periodontal Disease Index (NPDI). Instructions, criteria for scoring, treatment recommendations, and forms to record the data are presented on this form

PART II - NAVY PLAQUE INDEX

Diagram of surface areas:
M—mesial; G—gingival; D—
distal; and R—remaining



INSTRUCTION

For each tooth examined, record score on adjacent chart as follows:

Circle **M**
3

If you find plaque in contact with gingival tissue on *mesial* proximal surface.

Circle **G**
2

If you find plaque in contact with gingival tissue on *facial* or *lingual* surface.

Circle **D**
3

If you find plaque in contact with gingival tissue on *distal* proximal surface.

Circle **R**
1

If you find plaque on *facial* or *lingual* surface that is not in contact with gingival tissue.

Add Encircled numbers for each tooth, and record in *TOOTH SCORE* column.

Enter Highest score for any one tooth in *NPI SCORE* circle.

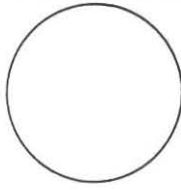
To complete the chart, total score for all teeth, and enter sum in *NPI TOTAL* square.

To amend chart: If the tooth designated on the chart is missing, strike through indicated number and insert substitute tooth number beside it. If 3, 12, 19, or 28 is missing, substitute the next most posterior tooth. If 9 or 25 is missing, substitute the nearest incisor in the arch, or where all incisors are missing from the arch, substitute a cuspid.

CHART FOR RECORDING PLAQUE FORMATION

TOOTH NO.	FACIAL					LINGUAL					TOOTH SCORE
3	M	G	D	R		M	G	D	R		
9	M	G	D	R		M	G	D	R		
12	M	G	D	R		M	G	D	R		
19	M	G	D	R		M	G	D	R		
25	M	G	D	R		M	G	D	R		
28	M	G	D	R		M	G	D	R		
TOTAL SCORE FOR ALL TEETH											

NPI SCORE
Record in circle highest score for any one tooth.



NPI TOTAL
Record in square total score for all teeth.



PLACE OF EXAMINATION			EXAMINER		DATE
PATIENT IDENTIFICATION					
SEX	GRADE, RATE, OR POSITION	ORGANIZATION UNIT	COMPONENT OR BRANCH	SERVICE, DEPT., OR AGENCY	
PATIENT'S LAST NAME—FIRST NAME—MIDDLE NAME			DATE OF BIRTH (Day-Month-Year)	SOCIAL SECURITY NO.	

FIGURE 2. The Navy Plaque Index (NPI). Instructions, criteria for scoring, and form to record the data are presented on this form

**TABLE 1. Periodontal Disease Status of Naval Recruits
at Great Lakes**

	Random N=433	Service School N=753
Navy Periodontal Disease Index (NPDI)		
Gingival Total (0-12 scale)	11.3 + 1.4*	11.2 + 1.4
Pocket Total (0-48 scale)	8.5 + 7.2	7.3 + 6.5**
Score for "worst" tooth (0-10 scale)	6.1 + 2.1	5.9 + 2.2
Total for all six teeth (0-60 scale)	19.8 + 7.7	18.5 + 7.0**
Navy Plaque Index (NPI)		
Score for "worst" tooth (0-18 scale)	16.8 + 1.3	16.6 + 1.3**
Total for all six teeth (0-108 scale)	86.2 + 11.4	85.7 + 10.7
Calculus Surface Index		
Total for all six teeth (0-24 scale)	8.8 + 5.1	7.9 + 4.6**
Distribution of Diagnoses**		
Generalized chronic periodontitis	0.2%	0.3%
Gingivitis with localized periodontitis	7.2	4.1
Generalized chronic marginal gingivitis	66.7	65.2
Localized chronic gingivitis	25.4	30.1
Generalized chronic papillary gingivitis	0.0	0.3
Localized chronic papillary gingivitis	0.5	0.0
Healthy gingivae	0.0	0.0
Treatment Needs		
Case Type IV (PCI, PRO, Pdt Scl, Gvcty, POT)	3.5%	3.2%
Case Type III (PCI, PRO, Pdt Scl)	77.9	74.4
Case Type II (PCI, PRO)	18.6	21.7
Case Type I (PCI)	0.0	0.7

*Mean + S.D.

**p < 0.05

about third molars,[†] periodontosis-like bony destruction,^{††} and aphthous stomatitis.^{†††} Limited examination and partial recording were done for the six teeth assessed by the NPDI (Figure 1) and NPI. The periodontal probe was used while examining for the presence or absence of calculus (supragingival# or subgingival##) on the four axial surfaces of the same six teeth examined for the NPDI. This was a modification of the Calculus Surface Index (CSI).⁽²¹⁾ The subjects then rinsed for five seconds with one mouthful of clear water, expectorated, then rinsed with a solution of two teaspoons (10 ml) of water and 0.5 ml erythrosine concentrate* for 10 seconds. The NPI was done according to its criteria (Figure 2). When plaque at the gingival margin extended coronally more than one mm, it was scored as both G and R.

After consultation with clinicians at the clinics treating recruits, periodontal treatment need case-types were contrived as follows: *Case-Type I* when the NPDI score for worst tooth = 0 to 2, CSI = 0, and plaque control instruction (PCI) required; *Case-Type II* when NPDI score = 0 to 2, CSI ≥ 1 , and PCI and oral prophylaxis (PRO) required; *Case-Type III* when NPDI = 5 to 7, CSI ≥ 1 , and PCI, PRO, and periodontal scaling (Pdt Scl) required; *Case Type IV* when NPDI score = 8 to 10, CSI ≥ 1 , and PCI, Pdt Scl, PRO, surgical and postoperative care were required. From the examination data, a treatment plan was made for each subject who might attend service school at Great Lakes. The rules for formulation of the treatment plan were verified with senior clinicians at the recruit dental treatment clinic, and each subject's treatment plan was confirmed by two examiners. Subjects who completed service school were reexamined as previously described. Their dental health record was then abstracted to determine what dental procedures and services had been accomplished, and a new treatment plan was made.

The data recorded on the forms was punched into cards and processed on computers with the use of the Statistical Package for Social Sciences.** All procedures involving the subjects were reviewed annually and approved by a committee for the protection of human subjects.

Results

The sampling methods allowed the selection of 1,186 subjects. About 0.4 percent of all recruits were represented by the 433 men in the random sample. The rest were those selected for service school after basic training. The random sample had a mean age of 19.0 ± 2.5 (S.D.) years, and 73.5 percent were high school graduates or had a GED equivalent. Their residence was a farm for 1.9 percent, a city with over 50,000 persons for 37.5 percent, and 60.6 percent were from towns and villages ($> 50,000$). The service school group had no significant difference for age or residence, but they had 87.7 percent high school graduates. The DMFT was 10.9 ± 5.4 in the random group. The service school group had statistically the same DMFT, but significantly ($p = 0.02$) fewer decayed teeth (random 6.5 ± 4.4 , service school 5.9 ± 4.5).

The periodontal disease status of naval recruits is presented in Table 1. There were statistically significant differences for the NPDI total score, primarily because of lower mean score for the pocket portion of the index in the service school group. That group had a significantly lower CSI mean than the random, and the distribution of clinical diagnoses was also different, but none of the differences were significant on a clinical basis. That is, there would be no major difference in planning clinic operations for either group as shown in the distribution of case-type.

The overall percent reliability based on intra-examiner diagnostic discrepancies between original and repeat examinations was found to be: NPDI gingival score 90 percent, pocket score 91 percent, NPI 95 percent, CSI 91 percent, and clinical diagnosis 99 percent.

The subjects were ranked by their clinical diagnosis and the indices, and rank correlations determined (Table 2). The NPDI increased in relation to increasing severity of diagnostic opinion and so it is thought to have validity for a recruit population. In evaluating the Navy Periodontal Screening Examination as an index for treatment needs we constructed case-types according to recommendations of the NPDI but dividing those with NPDI Scores of 0 to 2 into two groups according to the absence or presence of calculus. Table 3 presents the relationships and shows that the NPDI serves to determine treatment needs.

It should be noted that there were no subjects with healthy gingivae. The prevalence of periodontal diseases was 100 percent. In the randomly-selected group, 82 percent of the subjects had at least one pocket for the six teeth examined, and 5.6 percent had pockets on all six teeth. The distribution of pocket scores and gingival scores is presented in Table 4. The data indicated that

[†]ICD-DA No. 523.42.

^{††}ICD-DA No. 523.5X

^{†††}ICD-DA No. 528.20

#ICD-DA No. 523.64.

##ICD-DA No. 523.65.

*Trace dental disclosing solution, The Lorvic Corp., St. Louis, MO.

**McGraw-Hill, Inc., New York, NY.

TABLE 2. Relationships of Clinical Diagnostic Opinion and Navy Periodontal Screening Examination in Naval Recruits at Great Lakes, 1976-1978

Clinical Diagnosis	Number of Subjects	G* Total	P* Total	NPDI* Score/Total	NPI* Score/Total	CSI*
Generalized Chronic Periodontitis	3	12	35	10/47	18/92	18
Gingivitis with Localized Periodontitis	62	12	16	8/27	17/90	13
Generalized Chronic Marginal Gingivitis	764	12	8	6/20	17/88	9
Localized Chronic Marginal Gingivitis	334	10	5	5/15	16/82	7
Generalized Chronic Papillary Gingivitis	2	6	9	8/15	14/55	5
Localized Chronic Papillary Gingivitis	2	9	5	4/14	17/82	4
Healthy Gingivae	0	0	0	0	0	0
Summary	1167	11	8	6/19	17/86	8

*Average, nearest whole number

Rank Correlation with Diagnosis	+0.753	+0.306	+0.470	+0.259	+0.257
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All relationships are significant, statistically.

gingival inflammation was found at almost every site examined and that it encircled nearly 90 percent of the teeth. The pockets were primarily 3 to 5 mm gingival pockets associated with premolars and molars. Only one subject had an apparent "periodontosis."

An indication of the oral hygiene of naval recruits is presented in Table 5. Their plaque scores were high and, from the distribution of positive findings of dental bacterial plaque in the specific geographical sites of the NPI, it appeared that the subjects performed no daily cleansing between their teeth or at the gingival margins. This probably accounted for the high levels of inflammation, pocket formation, and calculus. Over 98

percent of the subjects had calculus deposits.

There were very few subjects seen with acute conditions such as necrotizing gingivitis, primary herpetic gingivostomatitis, or aphthous ulcers. The prevalence of each was less than one percent. Although many had slight inflammation about erupting wisdom teeth, only two percent were considered to have a frank acute pericoronitis requiring treatment.

The ages in the recruit population were tightly clustered in the 17- to 22-year range and age was not found to have strong correlations with the disease variables. Statistically significant ($p < 0.05$) correlations with age were a +0.10 with pocket total score, a

TABLE 3. Relationships of Treatment Needs and Navy Periodontal Screening Examination in Naval Recruits at Great Lakes, 1976-1978

Treatment Needs	Number of Subjects	G* Total	P* Total	NPDI* Score/Total	NPI* Score/Total	CSI*
Case Type IV	10	12	21	10/32	17/88	12
Case Type III	258	11	9	7/20	17/86	8
Case Type II	82	11	0	2/11	17/86	7
Case Type I	3	11	0	2/11	16/74	0
Summary		11	7	6/18	17/86	8

*Average, nearest whole number.

Rank Correlation

with Case Type	+0.180	+0.741	+0.711	+0.117	+0.234
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All relationships are significant, statistically.

TABLE 4. Percent Distribution of Gingival Inflammation and Pockets in a Group of Randomly-Selected Naval Recruits. Scores from the Navy Periodontal Disease Index

Tooth Number	Gingival Scores			Pocket Scores		
	0's	1's	2's	0's	5's	8's
3	0	13.3%	86.7%	64.0%	34.9%	1.1%
9	0.5%	23.7	75.7	88.0	11.5	0.5
12	0	14.4	85.6	72.0	27.5	0.5
19	0	5.1	94.9	27.5	70.1	2.4
25	0	5.9	94.1	93.3	6.7	0
28	0	7.7	92.3	86.9	12.8	0.3

TABLE 5. Percent Distribution of Plaque in a Group of Randomly-Selected Naval Recruits

Tooth Number	Facial				Lingual			
	M	G	D	R	M	G	D	R
3	93%	71%	99%	59%	99%	52%	100%	30%
9	84	38	89	18	97	40	99	43
12	83	40	93	17	96	27	99	1
19	96	60	99	34	98	93	100	21
25	95	53	96	15	99	93	99	60
28	89	39	97	10	100	92	100	25

M = mesial, G = gingival, D = distal, R = remainder

TABLE 6. Seasonal Variation in Status of Naval Recruits at Great Lakes

Variable	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
High School Graduate*	79%	80%	89%	83%
DMFT	10.9	10.1	10.8	11.2
NPDI*	17.9	19.6	19.1	19.1
CSI*	8.1	8.2	7.3	9.0

*Significant, $p < 0.05$

+0.11 with NPDI total score, and +0.18 with CSI. The distribution of periodontal clinical diagnoses by age was statistically significant ($p < 0.01$) by the Chi square analysis for the random group, but the same finding did not occur for case-type.

There were no significant relationships of residence with any periodontal disease variable. Residence had no significant relationship to having a high school

diploma for this population. In general, there was no significant relationship of having a high school diploma to any periodontal disease variable.

There were seasonal variations in the number of recruits reporting to Great Lakes. In the period March to June the population on board was 3,000 to 4,000, while in July to October there were about 7,000 men. The peak period also occurred when there were more high

school graduates entering the Navy at Great Lakes (Table 6). There were slight changes in the NPDI and CSI with the time of the year.

Criteria for formulating treatment plans specific for dentistry in the naval recruit setting were applied to all subjects selected for service school. The summary of treatment needs is presented in Table 7, using the categories of service used for reporting productivity in naval dental clinics. Results are projected to the third decimal point for each item so that one can estimate the number of treatments per thousand recruits. The standard routine for the clinic operations was that subjects should get two stannous flouride treatments and three group plaque control training sessions during their first six months in the Navy. Although the men received about 40 percent of their overall treatment requirements, only 16 percent had a needed prophylaxis and less than 10 percent of the periodontal scaling was accomplished.

There were positive and statistically significant correlations between all the periodontal indices of the recruits at entry to the Navy. The strength of the correlations was low, being less than +0.5 for most associations. This could not be due to few subjects, as there were over one thousand, but may have been influenced by skewed distributions of findings. Most recruits had a

gingival score of 11 or 12, at the end of the scale, as an example. Since we used the NPDI Score to assign subjects to case-types and construct treatment plans, the correlation of the NPDI Score to the initial projected treatment in periodontics was +0.6, $p = 0.001$. Most of the periodontal indices had no correlation with initial dental caries variables or with caries attack rates. No significant association has been found yet between periodontal variables and AFQT (Armed Forces Qualification Test) or the recruiter's Screen Score. At this time in the epidemiological survey of the periodontal health of naval recruits, the NPDI Score is the best determination of those who need periodontal treatment and it distinguishes the level of therapy required. Based on work measurement figures(22) the estimate of time to complete periodontics and oral hygiene procedures, including plaque control instruction, per recruit is 76 minutes. Based on VA fee schedules, this projects to \$86.80 per man for the value of services required. At Great Lakes only 26 minutes are devoted to the care of the average recruit for periodontal and plaque control instruction procedures.

Discussion

The significance of these epidemiological findings in naval recruits lies in their impact on treatment require-

TABLE 7. Periodontics and Oral Hygiene Procedures, Needs and Accomplishments from the Beginning of Recruit Training to Graduation from Service School, Average Per Man

Procedure	Initial Projected Treatment	Services Accomplished	Treatment Yet To Be Done
Equilibration	0	.014	0
Gingivectomy	.031	.014	.017
Gingivitis or stomatitis Treatment	.010	.031	.003
Prophylaxis	.995	.163	.980
Scaling (Periodontal)	.811	.070	.700
Plaque Control Instruction	4.871	2.439	1.717
Total	6.718	2.731	3.417

ments and the ability to manage the disease in the population so that readiness of military forces can be improved. Periodontal diseases were found in every naval recruit at Great Lakes. About 22 percent of the periodontal treatment needs could be performed by dental auxiliaries. The remainder would require the services of a dental officer. The large number of recruits (over 80 percent) with pockets to be treated showed a magnitude never before reported even though previous studies have documented the problem. The periodontal diseases were associated with low levels of oral hygiene. Especially important seemed to be the almost nonexistent interdental cleansing practiced by these men.

The Navy Periodontal Disease Index has been found to be a valid and reliable index in this recruit population. The NPDI Score determined the level of therapist required and the extent of the treatment to be planned. Current clinical operations emphasize the treatment of dental caries and rely primarily on plaque control instruction for gingival health maintenance. Only the severest of periodontal cases get treated by a dental officer. Clinical procedures very carefully discriminate and record dental caries and its relationship to the pulp and to the dentinoenamel junction. Gingival disease, however, is overlooked. There should be an attempt for early detection and treatment of incipient disease, a benchmark recording of conditions entered in the recruits' health records, and the recruits informed of their condition. Plaque control instructions would have to be very effective, indeed, to maintain an essentially untreated population. If the periodontal treatment requirements are more than recruit clinics have professional staff with which to cope, then it appears very important to conduct research studies into alternative modes of therapy and prevention in order to achieve readiness of naval personnel for the defense mission of the Navy.

Summary

The present population of naval recruits at Great Lakes has a universal prevalence of chronic inflammatory periodontal disease. The public health significance of this finding is denoted by the fact that four out of five need periodontal pocket therapy by a dentist. In this young age group there are few who would need surgical repair of deformities; therefore, the periodontal treatment of the population could be managed by general dental officers, dental hygienists, and Navy dental technicians.

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NOTES & ANNOUNCEMENTS

HOSPITAL CORPSMAN PART OF MGM GRAND RESCUE TEAM

From the front door of the Naval Reserve Center, Las Vegas, NV, one can see the lights of America's most dazzling street—the Strip. Here, vacationers come from all over the world to gamble and be entertained by the major stars.

HM1 Richard D. Abrisz, USN, is a stationkeeper at the center, an active duty Navyman who administers to the reservists who drill there. He is also a volunteer firefighter for the Las Vegas Fire Department, an unpaid position requiring one 24-hour watch period per month and three hours of training per week.

Moments after reporting for duty, his commanding officer, LCDR Scott Lyon, walked into his office and grimly stated, "The Grand is on fire, I'm sure they can use you." With that, HM1 Abrisz began a 16-hour day of terror.

His volunteer unit was quickly augmented into the regular fire department force. He joined a four-man team, donned oxygen-breathing apparatus, and made four exhausting trips to the top of the 26-floor hotel. They picked their way through 2,076 rooms in blinding smoke, finding guests crouching in doorways, stairwells, and hallways. Some never made it but many other were saved.

Petty Officer Abrisz and a fellow rescuer found one man lying on his bed. Fearing the worst, they found the man alive. He had spent a little too much time at the bar, returned to his room, passed out, and slept through the nightmare, oblivious to the fire and death surrounding him. "He got up, dressed, and walked downstairs all by himself," said Abrisz.

HM1 Abrisz, who hopes to enter the Physician's Assistant Warrant Officer Program, recently received a letter of commendation for teaching firefighting techniques to drilling Reservists. In his "spare time," the 27-year-old Burlington, IA, native is a volunteer ambulance driver at a Las Vegas race track, as part of the Las Vegas Naval Reserve Recruiting Stock Car Team. He is a seven-year veteran of the Navy.

—By: LCDR D.C. Henley, USNR-R and JO2 A.J. McGilvray, Jr., USNR-R

BACTERIOPHAGE TYPING OF STAPHYLOCOCCUS AUREUS

Navy Environmental and Preventive Medicine Unit No. 2 (NEPMU-2) continues to offer the Navy's only *Staphylococcus aureus* bacteriophage typing service.

Phage typing is an epidemiologic tool and is indicated when two or more *S. aureus* isolates are suspected of having a common origin. Naval medical facilities are encouraged to use this service when investigating nosocomial or foodborne staphylococcal illness. Phage typing can also be a valuable adjunct to routine hospital infection control programs and submission of specimens for this purpose is likewise encouraged.

Pure cultures of coagulase positive staphylococci to be typed should be sent to the Officer in Charge, Navy Environmental and Preventive Medicine Unit No. 2, Norfolk, VA 23511. Specimens must be packed and labeled in accordance with BUMEDINST 6210.3 of 9 March 1976. Bacteriophage typing is conducted on a monthly basis but may be performed upon request if the situation warrants. For further information, contact: Laboratory Officer, NEPMU-2 at Autovon 690-7671 or Commercial (804) 444-7671.

AMERICAN BOARD CERTIFICATIONS

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Arthroscopic Surgery at NRMC Oakland

"I am so happy—for the first time in 10 years, I can walk without any pain," reports Chief Aviation Antisubmarine Warfare Operator (AWC) James W. Basse of VP 31, NAS, Moffett Field, CA.

The Navy veteran of 14 years' service recently underwent arthroscopic surgery at NRMC Oakland, CA, the first patient there to have a meniscus cartilage in his knee partially removed by this relatively new surgical process.

Under the arthroscopic procedure, orthopedic surgeons insert instruments through small holes approximately 3/8-inch in diameter and are able to perform certain types of surgery on the inside of the knee without further surface incision. By the conventional method, the knee would require an incision of about three inches in length.

The arthroscope has been used for diagnostic purposes at NRMC Oakland and other medical facilities throughout the nation for three years or more, but its use for surgical repair is comparatively new on the medical scene. It was first developed for the field of sports medicine and has been successfully performed on professional football players.

"The best part of this new method is the rapid rehabilitation period," said CDR Robert H. Malstrom, one of the two Navy specialists who operated on Chief Basse. The other NRMC Oakland orthopedic surgeon who specializes in the arthroscopic procedure is CDR A. Herbert

Alexander. Thus far, the surgery is performed only on the knee by the Navy hospital, but some experimental surgery on other joints is being done in the outside medical community.

In Chief Basse's case, he suffered multiple injuries over a 12-year period, resulting in torn cartilage in both knees. Surgery was performed at NRMC Oakland on his right leg in April, using the conventional method, and the Navy man was unable to return to duty for a period of eight weeks. An arthroscopic procedure was performed at the same hospital on his left leg on 2 Oct 1980. Three days later he was walking on crutches, and several days later was able to walk without their support. Following 14 days of convalescent leave, the Chief was back to full duty, climbing on and off military aircraft, and running up and down three flights of steps "at least 10 times a day" from his office on the third deck of a hangar.

Dr. Malstrom said that in addition to cutting rehabilitation time by two-thirds and returning military members rapidly to full duty at strenuous activity, the hospital stay is shortened considerably, thereby releasing space for other patients. "In some former instances," he said, "it has been necessary to keep military patients on limited duty as long as three months when the old procedure was used."

According to CAPT David M. Lichtman, Chairman of NRMC Oakland's Orthopedics Service,

future arthroscopic operations at the hospital will be televised in order to instruct residents, nurses, and hospital corpsmen in the procedure. The surgery will also be recorded on videotape for playback to patients.

"The knee that had the more recent surgery already feels better than the one operated on last April," said Chief Basse, enthusiastically. "I love to play racquetball and softball. Now, for the first time in many years, I'm really looking forward to getting back into competitive sports!"



Surgeons remove part of a meniscus cartilage in a patient's knee by inserting an instrument through a small hole.

BUMED SITREP

PATIENT AFFAIRS AND OUTPATIENT SERVICES OFFICERS' HANDBOOK

The new Patient Affairs Handbook, dated 30 Oct 1980, is presently in the distribution system for dissemination to field activities. Designed and promulgated as a ready reference source for Patient Services Officers, this handbook will aid Administrative Watch Officers (AWOs), Emergency Room personnel, OICs and Senior Medical Officers (SMOs) in branch clinics, and other individuals with responsibility in the medical administration arena. Comments from field activities addressing the usefulness and applicability of this instruction, areas of question or error, and deficiencies are hereby solicited. Field input is vital in insuring that this instruction is a *meaningful* and *responsive* reference tool. For assistance or information concerning the handbook, contact LT S. Custis, LT J. Hetsko, or ENS T. McMahan, Patient Affairs and Services Branch, Health Benefits Division, Commercial: (202) 254-4082 or Autovon: 294-4082.

PROSPECT REFERRAL OPERATION-NAVY (PRO-NAVY)

Over 14,000 fleet and shore command referrals have been processed by the Navy Recruiting Command since PRO-Navy's inception a year ago. These referrals significantly aided our Navy recruiters in attaining their One Navy goals in FY80. The following commands were recognized as the "super chargers" in PRO-Navy referrals:

- USS *Saratoga* (CV-60)
- USS *Josephus Daniels* (CG-27)
- VA-122
- USS *William H. Standley* (CG-32)
- NAS South Weymouth
- Naval Education and Training Center, Newport, RI.
- RTC Orlando
- RTC San Diego
- RTC Great Lakes
- Naval Damage Control Training Center, Philadelphia, PA.
- Naval Air Training Command Choir

Everyone is urged in the Navy family, civilian and military, to participate actively in PRO-Navy in FY81. The requirement to enlist over 100,000 new accessions into the Navy this year is a formidable task. However, if

only one in five uniformed members of the Navy each referred one person who enlisted, our goals would be met and fleet manning would be improved.

MISTAKE IN MEDICAL GUIDE

A recent *New York Magazine* article (17 Nov 1980) stated that the 23rd edition of the *Manual of Medical Therapeutics* issued in May, has listed the wrong drug for the treatment of high blood pressure in pregnant women. It was reported that there were a group of Navy doctors trying to alert the medical community to this mistake. The doctors suggested that the manual's editors confused metaproterenol—a drug the book listed as "relatively safe" in treating high blood pressure in pregnancy—with metoprolol. A doctor is quoted as saying that the latter drug lowers blood pressure, but the former "could drive it off the wall. It could cause kidney dysfunction and brain and eye hemorrhages. The potential is there to kill people."

There is particular concern over this item, because the manual which is published by Little, Brown, is widely used by inexperienced young hospital interns.

Dr. Jeffrey Freitag, the manual's co-editor, admitted the mistake. "But there's no danger," he said, "because we don't comment on when the drug should be used."

A spokesman for Little, Brown said the error will be corrected in a new printing.

REVISED OCCLUSION COURSE

"Occlusion" (NAVEDTRA 13114-A) is a newly revised correspondence course for dental officers prepared by NNDC Bethesda, MD, for BUMED.

The course is based on the text *Evaluation, Diagnosis, and Treatment of Occlusal Problems*, Peter E. Dawson, The C.V. Mosby Company, 1974. The objective of this five-assignment course is to give students a broad understanding of the system of occlusion and of the cause-and-effect relationships that occur within the system. The rationale for specific techniques is explained, and the effects achieved with each technique are studied comparatively. An understanding of the principles presented in this course should help the student perceive conditions that previously may have gone undiagnosed.

Naval Reserve credit for the course is evaluated at 10 points, and officers who have completed the earlier edition of this course may enroll in the new course for additional credit.

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